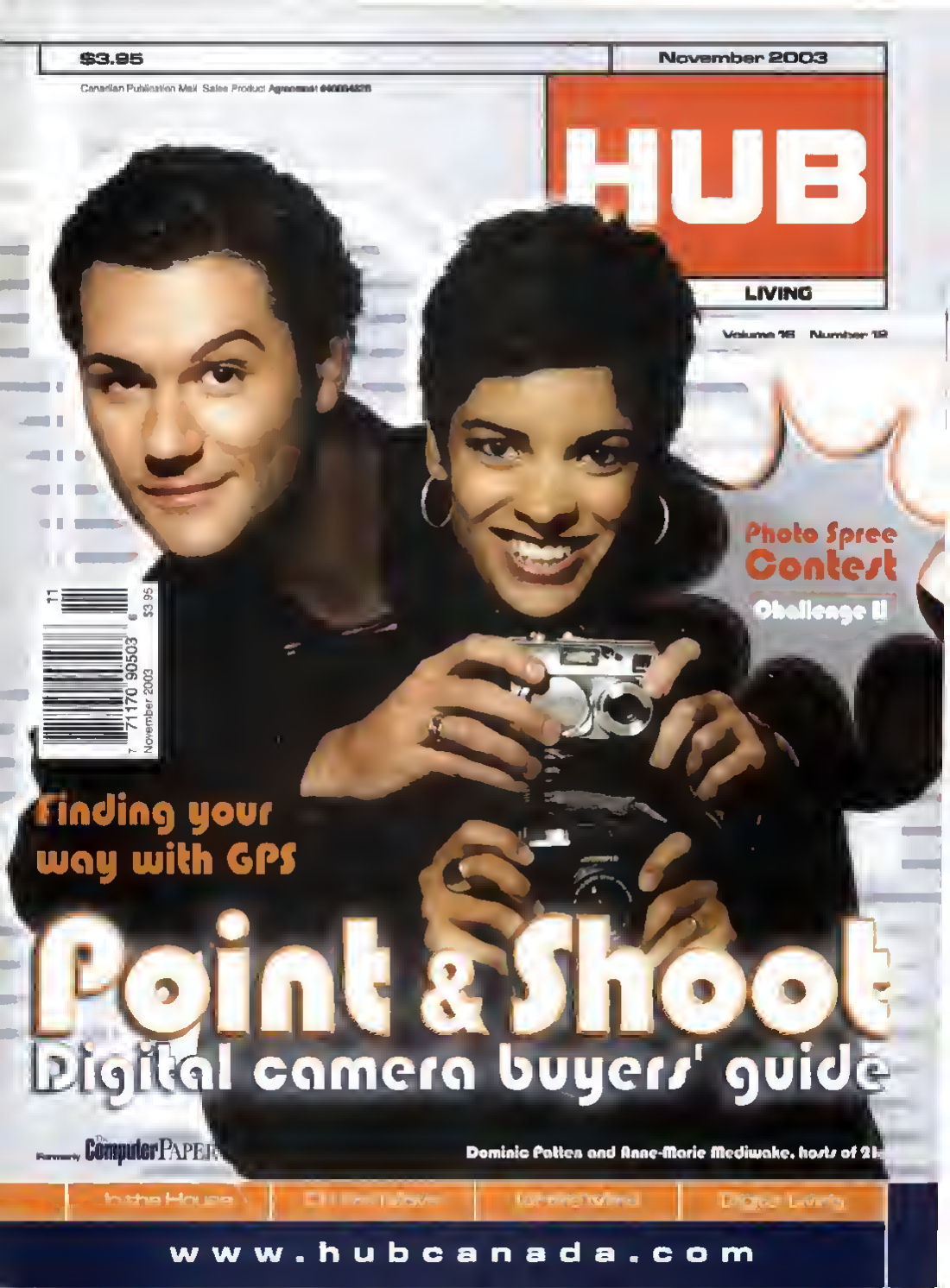
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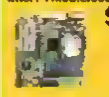

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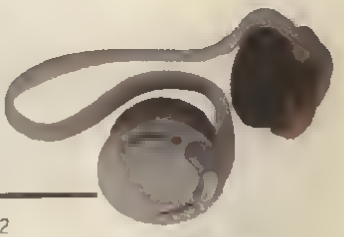

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Editorial

Megan Johnston

According to the U.S.-based Photo Marketing Association, this is the year digital cameras are expected to outsell film models. And we know from our own market research that a digital camera is at the top of the list — by a significant margin — of the digital tools Canadians plan to buy in the next 12 months. If you're one of those people, your head may already be spinning trying to compare the number of models available, understand the features, and match them to your needs. To help you in your search, we've looked at more than 20 new cameras — including a wide-range of models for new photographers, point-and-shooters, and serious hobbyists. If you already have a digital camera, your head may also be spinning at the sheer number of shots you've managed to accumulate. For that we take a look at some organizing and printing solutions to help you tame the beast.

Very Important Premiere

This month, we're pleased to introduce the new HUB Digital Living VIP Award. As explained by Senior Product Review Editor Sean Carruthers, "Every so often, we see a product or technology that floors us for one reason or another it pushes the boundaries of technology or design, changes the way we look at an entire category of products, or redefines the way we interact with technology." These products are eligible for the HUB VIP Award, designed to recognize Very Impressive Products, Very Important Products, Very Innovative Products and Very Interesting Products. (See page 24 for the first product to get the HUB Digital Living VIP Award.) — Megan Johnston, Editor

Letters. The DVD is in the mail here too!

Love your magazine... I also wanted to comment on Andy Walker's article. He raved about Nexflix.com, then talked about Canadian copycats and mentioned DVDflix.ca... Well, there are several other Canadian DVD rental Web sites out there that feature thousands of movies and varying pricing, such as CinemaFlow.com, DVDHype.com, MoviesForMe.ca... By pointing out that the Canadian version of a popular Web site in the States is a joke (ranked 468,334 on Alaxa compared to 237) makes one think twice about even bothering with Canadian Web sites. It's taking a while for Canadians to feel comfortable with shopping online but they're getting there. Let's not give up on them... keep it positive people! — Dan, via email

HUB replies. In giving the Web rankings, Andy was indicating what a phenomenon Netflix.com has become in the U.S., and was not intending to ridicule Canadian services. That said, we know there's some interest in Canadian services from the number of letters we recieved on this topic. So, thanks for the heads up from everyone who wrote in.

Letter of the month contest

The prize this month goes to **Bruce Scott** of Toronto:

"I enjoyed your latest issue and I didn't even realize until halfway through that it is the redesigned Computer Paper magazine of old. Nice job on the revamp. And as a Mac user, I am glad to see some mention of Apple-related issues included although more wouldn't hurt. As for the question of the month, 'how are you living digitally?', I think that everything from Y2K to the recent blackout has proved that we are plugged in so far we have no chance of ever becoming unplugged. But on a more human scale, I was on vacation in Germany recently, and I bought a beautiful postcard of one of the grand old buildings in Berlin. Then I realized that I didn't know anyone's physical address off the top of my head except my own and my parents (which hasn't changed since pre-digital revolution). You can guess who got the card. Regards (and keep up the good work)."

Fujifilm Canada is giving away a digital camera for the best letter of the issue. The camera is its new pocket size Fuji FinePix A205, a 2.0 megapixel model, with 3X zoom, and 1.5 inch colour LCD monitor for reviewing shots and navigating the commands. This month, in addition to feedback on the issue, tell us about your favourite digital gadget. Drop us a line at **letters@hubcanada.com**

HUB

DIGITAL LIVING

Volume 10 : Number 11

EDITORIAL

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COMING UP

December 2003
Gift Guide

Ad booking deadline	Wednesday, Nov 19
Ad deadline	Monday, Nov 24
Distribution begins	Friday, Dec. 5

January 2004
Digital Video

National ad booking deadline	Mon., Dec. 29
Regional ad booking deadline	Fri., Jan. 2
Ad deadline	Mon., Jan. 5
Distribution begins	Wed., Jan. 14

February 2004
Home Automation

National ad booking deadline	Wed., Jan. 21
Regional ad booking deadline	Thurs., Jan. 22
Ad deadline	Mon., Jan. 26
Distribution begins	Wed., Feb. 4

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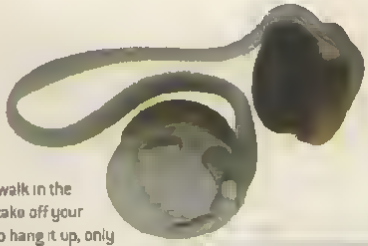
On the cover this month:
Anne-Marie Medwake and Dominic Patten
hosts of newsmagazine 21.01
Photographer
Mr Lade www.mrlade.com
Make-up artist:
Carla Naylor for Laura Mercier Cosmetics

First glance

A preview of new and notable digital devices. Look for full reviews in upcoming issues of HUB: Digital Living



Mojo 1

You walk in the door, take off your coat to hang it up, only to feel your headphones violently ripped out of your ears as you walk away from your jacket and the music player still in the pocket. C'mon, admit it, we've all done it, right? So check this out: the **Mojo 1**, a new portable audio player from TDK (www.tdk.com), stays on your head, because that's where it is — built into a set of neckband-style headphones.

The Mojo 1 has 128 MB of built-in memory and plays MP3 and Windows Media Audio (WMA) formatted files, plus FM radio through a tuner with 25 programmable presets. It also has an MMC and SD card compatible memory slot for extra storage. It runs on a AAA battery and connects to the PC via USB. It sells for an estimated street price of $235*.

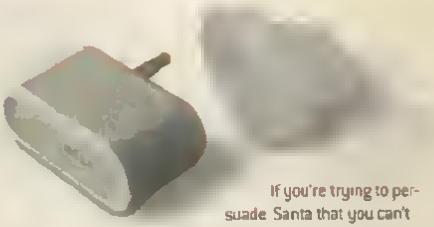
Clié PEGA-VR100K

Can they still call you a couch potato if you're a moving target? Sony (www.sony.ca) has just released the **Clié PEGA-VR100K**, a video recorder that can be connected to the TV to record programming onto a Memory Stick for later viewing on the TV, PC, or on a Clié handheld. It compresses video directly onto Memory Stick Pro or standard 128 MB Memory Stick media, according to Sony.

The unit also has a built-in TV tuner and can be used to watch television through computer displays that have a video input jack.

The Clié Video Recorder is priced at $479.99.

*Converted from US$



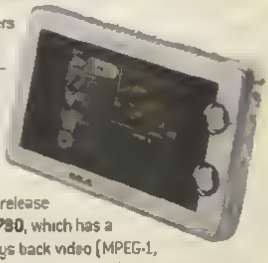
Belkin Voice Recorder

If you're trying to persuade Santa that you can't live without an iPod, here's a couple new reasons. Belkin (www.belkin.com) has released accessories that will add voice recording and photo storage to the iPod's list of accomplishments.

The **Belkin Voice Recorder for iPod**, which is priced at $66*, plugs into the music player through the remote/headphone connector and offers an omnidirectional microphone and a built-in speaker. It records files in WAV format, which can be transferred to a computer for review and storage.

The **Belkin Media Reader for iPod** (estimated street price: $132*) allows users to transfer digital photos from several popular memory card formats to the iPod's drive for storage, freeing up the cards to be re-used. It includes slots for CompactFlash (Type 1 and 2), SmartMedia, Secure Digital, Memory Stick, and MultiMediaCards.

Both devices require Apple's updated software for the iPod, version 2.1, which Apple has adapted to work with the Belkin accessories and made available free at www.apple.com/ipod. The update also offers faster browsing, the ability to sync on-the-go playlists back to iTunes, and a new Music Quiz game, according to Apple.



Lyra R02780

As portable audio players rise in popularity, there are two distinct trends — making them smaller and giving them more memory. Soon there will be a new trend — video. RCA (www.rca.com) is set to release the latest **Lyra**, the **R02780**, which has a 3.5-inch display that plays back video (MPEG-1, MPEG-2, MPEG 4), displays images (JPEG), and plays music (MP3, MP3pro, and WMA).

The unit measures 13.6x8x2.4 cm and weighs about 369 g, making it a bit bigger than a PDA but not much heavier, and it contains a 20 GB hard drive. It also has a CompactFlash (Type 1) slot for transferring files.

Most times you will connect the RD 2780 to your computer via USB 2.0. You can also record video and audio directly using the video and audio in jacks — just like a VCR. The price of the R02780 is $699.

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Point and shoot

From simple to sophisticated, there's a digital camera for everyone

A few years ago, digital photography was the realm of early adopters, professionals, enthusiasts, or those who liked blocky images. Cameras were expensive, images mediocre, and storing the digital photographs was inconvenient.

My how times have changed: digital cameras have reached the price point of their film counterparts, image quality is great, and prints can be made at home or sent to photolabs as easily as with film. As well, the capacity of memory cards has exploded, while their physical size has shrunk, and prices have dropped.

There is such a variety of digital camera available today that making a choice can be overwhelming. For this roundup, HUB looked at 22 digital cameras, grouping them by target users: those who are new to photography — film or digital, those who've used a point-and-shoot film camera and want a similar digital model, the more experienced user who wants to experiment with a camera with added features, and the advanced hobbyist who wants the most bells and whistles for their buck. We've included reviews of the best of each category in this issue. For our take on models listed as "also reviewed" go to www.hubcanada.com.

By Nestor Gula

Neophyte photographer

If simplicity is what you're after, ironically, you have a lot of choices. A straight-ahead 2 to 3 megapixel (MP) camera is perfect for this type of user: a 2 MP image is adequate for 4x6-inch prints and 3 MP will do the job for 8x10-inch prints.

Fujifilm FinePix A205

www.fujifilm.ca Price: $299

This simple-to-use, two-megapixel camera is a good choice for the novice. Its thick body holds a 3X optical zoom (equivalent to a 36-108mm zoom lens on a 35mm camera). It comes with a 16 MB xD memory card (enough for 25 high-resolution images) and can use cards up to 512 MB. It runs on two AA batteries, which Fujifilm claims can take up to 300 shots (use depends on the brand of battery and whether the LCD or flash are used). It can also capture video (without sound) at 10 frames per second (fps). The ring around the shutter button selects between the image capture, picture viewing, and video modes. Hitting the menu/OK button lets you select resolution, toggle between manual and automatic shooting modes, select exposure white balance options, or turn the self timer on. A scroll button lets you toggle the flash on or off, select from two types of red-eye reduction, and slow sync flash. The basic functions of this solid little camera are enhanced by the video out jack, which lets you view your pictures or video on a TV set.

Available separately is the Fujifilm PictureCradle (bundled with rechargeable batteries and a power adapter) for simple transfer of images to your computer.

Pentax Optio 33WR

www.pentaxcanada.com Price: $479.99

This camera's added attraction is its water resistance. Although it can't be submersed, it can be used without fear in rainy conditions or where water is being splashed. It has a top resolution of 3.2 megapixels, a 2.8X optical zoom (equivalent to a 37-107mm zoom lens on a 35mm film camera), and a 4X digital zoom. Despite its boxy shape, it fits comfortably in your right hand, allowing you to adjust most of the controls with your thumb. The user interface is fairly simple: the mode tab scrolls through icons for 12 modes that range from generic (landscape or portrait) to specific (night-scene portrait, sunset, or fireworks, for example), and include panorama and movie (video with sound at up to 320x240-pixels at 15 fps). Viewing images is controlled by a separate button on the back. The built-in flash has several modes, including red-eye reduction. This small, light, water-resistant camera is a great option for active people. It uses SD removable memory.

Also reviewed

BenQ DC3410	www.BenQ.ca Suggested retail price: $270
HP Photosmart 435	www.hp.ca Price: $229.99
Nikon CoolPix 2100	www.nikon.ca Price: $359
Sony DSC-P72	www.sony.ca Price: $449.99

more @ hubcanada.com

Point-and-shoot film vet, digital newbie

Moving from film to digital is not that big a jump today. Most new digital cameras are designed to take the place of the simple point-and-shoot film cameras, but include more features than you'd get with a similar film model. When choosing a camera, spend some time looking through the menu options to see which manufacturer's system suits you best. You should look for cameras with 3 MP or better resolution.

Canon PowerShot SD100 Digital Elph

www.canon.ca Price: $499.99

If you want to carry a camera with you all the time, the Elph is

worth considering. This 3.2 MP model is about the size of two decks of cards and light enough to sit comfortably in a jacket pocket — it will take some getting used to, though, if you have large hands. Shooting in automatic mode worked well, with good focus even when the subject was not in the centre of the shot. It can capture up to three minutes of video with sound at a choice of three resolution settings (maximum is 640x480). If you're trying to catch still shots of an active subject, it has a continuous shooting mode that takes pictures as long as you hold the shutter down (works best without the flash, as that slows the recovery time between shots). It comes with a 16 MB SD memory card (good enough for eight high-resolution shots, so leave some room in the budget for a higher capacity card).

Sony DSC-P8

www.sony.ca Price: $549.99

This camera comes in a choice of three metallic colours: silver, red, and blue. HUB tested the red model, which turned heads everywhere it went. Inside the attractive, compact package is a lot of power: a top resolution of 3.2 MP and a 3X optical Sony zoom lens (equivalent to a 39-117mm on a 35mm film camera). This model has the same lens as the DSC-P72, but is quite a bit smaller due to its internal Lithium battery, which takes six hours to charge but is long lasting, even with heavy flash use. The dial on top of the camera switches between auto, program, scene, image review, control setup, and video (640x480-pixels at up to 16 fps with sound) modes. The DSC P8 shares the idiosyncratic user interface of other Sony cameras, which takes a while to adapt to, so keep the manual handy. Despite this, the DSC-P8 is a lovely camera: images are crisp and clear and the camera is comfortable to use, eye-catching (especially in red), and has enough features to please most photographers.

Also reviewed

BenQ DC5330	www.BenQ.ca. Sug. retail price: $499.99
FujiFilm FinePix A310	www.fujifilm.ca. Price: $499
Kodak DX6440	www.kodak.ca. Price: $629.95 (DX6440), $299.95 (EasyShare Printer Dock)
Nikon CoolPix 4300	www.nikon.ca. Price: $579
Panasonic DMC-FZ1	www.panasonic.ca. Price: $699.99
Pentax Optio S4	www.pentaxcanada.com. Price: $599
Sony DSC-P10	www.sony.ca. Price: $699.99

more @ hubcanada.com

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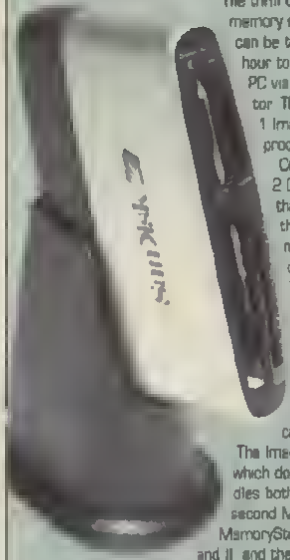
Speed reader

SanDisk ImageMate 8-in-1 Reader

www.sandisk.com

Estimated price: $52*



The thrill of getting a high-capacity memory card for your digital camera can be tempered when it takes an hour to transfer your pictures to a PC via the camera's USB connector. Thankfully, SanDisk's new 8-in-1 ImageMate can speed up the process.

Connecting to a PC using USB 2.0, it offers transfer speeds that are up to 40 times faster than USB 1.1 devices (the PC must have a USB 2.0 too). No drivers are required. Windows XP, 2000, and Me recognize four new "removable" drives when you plug in the ImageMate. Mac OS 9.1 or later and OS X display a new drive on your desktop when a memory card is inserted.

The ImageMate has four slots, all of which do double duty: the first handles both SD and MMC cards; the second MemoryStick and MemoryStick Pro; the third CF Type I and II; and the last handles SmartMedia and xD cards.

You can connect the ImageMate to your PC by dropping it into the included cradle or linking it directly via USB cable — so you don't have to pack the cradle too, when you're on the road with your notebook PC. Either way, it requires a powered USB port.

By Sean Carruthers

Gone but not forgotten

ImageRecall

www.flashfixers.com

Estimated price: $52* (download), $80* (CD)

Digital cameras are also computers, and like computers, their files can be lost or damaged. Image data, however, can be more difficult to recreate and is usually more personal. Enter ImageRecall, software designed to recover lost or corrupted image files from CompactFlash, SmartMedia, Microdrive, Memory Stick, SecureDigital, MultiMediaCard, and xD removable memory cards. HUB put the software through a relatively simple test: copying a folder of 120 photos to a USB flash disk, deleting it, and running ImageRecall, which recovered the images as promised. A side-by-side comparison of original and recovered files showed no loss in quality. It requires Windows 98 or later, and a free trial version can be downloaded from FlashFixers' Web site. The CD version includes DataRecall for recovering Microsoft Office and PDF files.

By Sharlene Myers

** Converted from US$40 (ImageMate), US$39.95 (ImageRecall download), US$45.95 (ImageRecall CD)*

Dual-use cameras: deal or dull?

Dual use cameras are designed to take snapshots when you're on the go and to plug into your PC for use as a Webcam for video chats. Sounds like a great combination, but are they worthwhile?

If you're looking for a very basic point-and-shoot digital camera with no manual configuration options, the answer is a qualified yes. In order to keep costs low, most models omit the LCD screen, which means you can't review your shots. The low prices make these combo cameras very attractive, but they are unlikely to please more serious photographers.

Photographic quality is pretty low-end, most sport resolutions of 1.3 megapixels or lower, and sometimes even that is up-sampled from lower-quality images (resulting in grainy or blocky pictures). Further, the cameras have a more basic auto-focus system, which offers less versatility in different lighting conditions.

Creative PC-Cam 880
www.creative.com
Estimated price: $229

Creative's newest dual-mode model takes a different shape than its predecessors and features a 1.5-inch TFT display. This little window makes a world of difference, allowing you to frame, review and

continued on page 15

Feature creature

Those who want to take photography to a higher level need a more sophisticated camera. The models in this category give users a significant amount of control. All have automatic and other preprogrammed modes, but they allow the user to set the aperture and shutter speeds manually and have features for enhancing images and making the photographic experience fun.

HP Photosmart 945
www.hp.ca Price: $749

This camera is perfect for that friend who takes up a new hobby and within a matter of months, learns everything about it. It has the feel, look, and weight of a film SLR camera, but novices can start out shooting in automatic mode with good results, moving to manual settings as they're more comfortable and want to experiment. The 945 has a top resolution of 5.3 megapixels and an 8X optical

zoom. Its six shooting modes include action, portrait, landscape, aperture priority, shutter priority, and automatic, plus video recording (up to one minute). All of the menus offer built-in help, so you can leave the manual at home. The new whiz-bang feature on the 945 is what HP calls Adaptive Lighting Technology — in the menu, it's called digital flash. When turned on, it will brighten dark areas in photos, so there is less contrast. For example, if you're shooting on a sunny day, or your subject is backlit, the digital flash will brighten up parts of the photo that are in shadow. The results are quite noticeable and could save a lot of pictures that would otherwise be only so so, but using it does increase the recording time and slows down shooting.

Nikon CoolPix5400
www.nikon.ca Price: $1,079

Looking very rugged in its magnesium-alloy body, the Nikon Coolpix 5400 is very comfortable

to hold, with the many control buttons and wheels within easy reach for one-handed operation. Intended for the more advanced user, it has a maximum resolution of 5.1 megapixels and a 4X optical zoom (equivalent to a 28-116 mm zoom on a standard 35mm film camera). The lens is very good, resulting in pictures that are sharp and colours that are accurate. With the camera in your right hand, the index finger controls the shutter release, turns the camera on and off, switches between a wide-range of flash modes (from auto to red-eye reduction, and rear-curtain sync), changes the EV balance, and hits the function button. It also has a hot shoe that will take a standard flash. The thumb operates the mode and command dials, as well as zoom, autofocus, auto exposure lock, menu button, quick look, and display buttons. The 1.5-inch LCD swivels for those self portraits, low shots, or above-the-heads crowd shots — a feature more digital cameras should have. This camera is intended for the professional or advanced amateur who wants a high end, feature-laden camera with point-and-shoot convenience. It just barely fits into a shirt pocket and is light enough that it's easy to take almost everywhere. An excellent camera that's just a step below a digital SLR.

Also reviewed
Fujifilm FinePix S5000
www.fujifilm.ca Price: $799
Olympus Camedia C750
www.Olympus.com Price: $799
Sony DSCV1
www.sony.ca $899.99

more @ hubcanada.com

Power hungry

Many serious photo hobbyists still swear by their SLR film cameras. To switch to digital, they'd need a solid-bodied camera that offers them the equivalent manual controls and allows them to change lenses. Until recently, digital SLRs were

out of reach for most photographers, but prices are starting to drop. In late September, Canon introduced the Digital Rebel SLR for $1,599 with a lens. The next closest system is the Olympus E-1 digital system, which starts at just under $3,000 for the camera body only. Because they are impressive but quite different cameras, we've included reviews of both the DSLRs we looked at. The Canon Digital Rebel edges out the Olympus in this category due to its affordability.

Canon Digital Rebel
www.canon.ca Price: $1,599 (with lens), $1,499 (body only)

This is the camera amateur photographers have been waiting for: an affordable digital model with

interchangeable lenses and the look and feel of a 35mm SLR. While not cheap ($1,599 for the body and a 18-55mm lens), it's about half the price of other DSLRs and could be all that an amateur photographer would need. It has a 6.3 MP sensor that has a 3:2 aspect ratio, which matches conventional print sizes. It is compatible with all of Canon's EF lenses, so there are plenty of new and used lenses to choose from. (The included 18-55mm lens is not compatible with the film cameras, though.) For those who own a Canon SLR, the Digital Rebel should be a no-brainer — if the finances allow. Because it's a full-sized camera, it is comfortable to look through the viewfinder — which includes lots of information (AF points, AE lock, flash ready, high-speed sync, shutter speed, aperture, exposure level, focus confirmation, and more) allowing you to turn off the 1.8 inch LCD to conserve battery power. This high-end camera has lots of functions, so you'll need to consult the manual to get the most out of it. The user interface is quite intuitive, though — most shooting controls are located on the wheel on the top-right side of the camera. It's been a long time coming, but finally there is a DSLR that is within the reach of photo hobbyists.

Olympus E-1
www.olympus.com Price: $2,799 (body only), $799 (14-54mm Zuiko lens), $649 (FL-50 flash)

The Olympus E-1 is the first camera developed according to the Four Thirds System standard

(developed by Fujifilm, Kodak, and Olympus) and is the first DSLR camera system developed exclusively for digital photography. The lenses (there are presently four, plus a 1.4X Teleconverter available), are not compatible with film cameras. The benefit of the all digital design is that there is more consistency in the image — especially on the edges. This is not a factor in 4x6 inch snapshots, but is important when images are enlarged or reproduced in glossy magazines. The E-1 feels like a professional camera. Its magnesium alloy body has a solid feel and the doors that cover the CF slot and the battery compartment have sturdy locks. If you're comfortable with a 35mm film SLR, you will love this camera. It is heavy but very comfortable to hold and use. Image information — shutter speed, aperture setting, the number of photographs you can take in sequence before you have to pause (at rest, the number is 12), and a focus lock light — is displayed in the viewfinder. An LCD on top of the camera contains more detailed information about shooting mode, bracketing, and other advanced features. Unlike most digital cameras, the LCD panel on the back is used for camera setup and reviewing images, not to compose pictures. Because it's geared to the professional user, it goes without saying that the images are excellent. The Olympus E-1 has all the features of a modern film SLR, plus many geared for digital photography. You can shoot comfortably in automatic mode, but this is not a camera for novices.

By Nestor Gula
(Reviews of HP Photosmart 945 and Canon SD10D by Sharlene Myers)

continued from page 14

delete images while you're on the go. The box claims a 3 MP resolution, but it's worth noting that it's interpolated from 2.1 MP, so images won't be quite as good as those from a true 3 MP camera.

The PC-Cam 880 also features a movie mode, which shoots 640x480-pixel video at up to eight frames per second — not fantastic, but a nice addition.

It can also be used as a webcam when tethered to a PC via USB, and comes with a pivot stand. It has 16 MB of onboard memory (good for 17 high resolution shots or 76 seconds of video) as well as a slot for SecureDigital media cards.

As with many dual mode cameras, the PC Cam 880 is not great for photographing in low-light conditions. In a small space, the flash can overpower the subject, but with the flash turned off, images are grainy to the point of useless. You can adjust exposure settings in the menu, but it's a bit of a pain. We're also a bit disappointed with the general image quality at higher resolutions, with a quoted resolution of 3 MP, we expected better.

That said, it's not a bad value if you want something basic.

By Sean Carruthers

Other dual-mode models

Logitech ClickSmart 510
www.logitech.com
Estimated price: $196*

Logitech ClickSmart 820
Estimated price: $235*

*Converted from US$150 (510), US$180 (820)

Camera or camcorder?

For more modest budgets, the choice between camera or camcorder means more of a compromise. Here are a few things to consider when looking at double-duty cameras.

The lowest-priced DV camcorders cost $700 to $800. These produce full DV-quality movies and still images equal to a one-megapixel digital camera. The video will be excellent for home movies and overkill for the Web. The still image resolution would be sufficient for 4x6-inch prints and more than enough for Web posting or emailing.

A digital still camera in this $700 to $800 range would likely be a four- or five-megapixel model. The resolution would be good enough for 11x14-inch prints. However, video performance on most still cameras is a compromise, with limits on frame rate, size and duration of each clip (and some don't have audio). The video would be good enough for Web posting, emailing, or viewing through a media player on your computer. For under $400, you could purchase a two-megapixel still camera capable of producing 5x7-inch prints and with comparable video performance.

DV camcorders typically have a greater zoom range, often 10X or even 20X optical, versus 3X or 4X for still cameras in this price range.

Then there's ergonomics, designed for specific shooting situations; they can be awkward to use for their secondary function.

By David Tanaka

DV with a difference

For years now, digital video cameras have been capable of capturing still images using the CCD they employed for shooting video. Though convenient, the resulting pictures weren't great as the CCD sensors used to record digital video were under 1 megapixel (MP). Some DV cameras claimed to capture stills at more than 1 MP, but they usually up-sampled, which meant a compromised image. Following are two new DV cameras that up the ante on still image capture.

Samsung SC05000 DuoCam

www.samsung.ca

Estimated price: $2,000

Samsung's SC05000 DuoCam puts a new spin on the digital/still issue — literally. Instead of using the same sensor for both features, it has a lens assembly that spins through 180 degrees. Pointed one way, it's a standard DV camera with a 10X optical zoom. Spun the other way, it's a 4.13 MP still camera with 3X optical zoom. The lens assemblies and sensors are discreet, so you don't have to compromise on either feature. The lens assembly can be angled up or down from the camera body in either mode.

It has buttons on three sides of the lens: those along the top control the active lens, and a series along the side controls the still camera component. The battery attaches to the rotating lens module, which looks awkward but works just fine. The main camera body holds the DV tape, has a Memory Stick slot (it comes with 16 MB card) for stills, and a 2 inch LCD that flips up and spins through 180 degrees. The camera fits neatly in the right hand, with the main controls within easy reach of the thumb. A bit heavy and awkward compared to new ultra-compact DV cameras, but it's forgivable given the functionality.

The still images are quite good, though not as good as to shots taken with a stand-alone 4 MP camera. The built-in flash is inside the lens assembly and pops up as necessary, but there is a delay of up to a second. Once it's up, though, reaction time improves for subsequent shots.

Minor problems aside, the DuoCam combines the best of both worlds. It's pricey, but not out of range with comparable high-end consumer DV cameras. Throw in 4.13 MP digital still capabilities and it's not a bad deal.

Samsung SC05000 DuoCam

Canon Optura Xi

www.canon.ca

Estimated price: $2,399

Canon's new Optura models get around the digital/still compromise by using the entirety of their 2 MP CCD sensor for still photography. The Optura Xi model has an 11X optical zoom and a 3.5-inch LCD. You can also capture images in 16:9 format for playback on a widescreen TV.

Canon Optura Xi

Video can be saved to DV tape or SD memory cards, simply by flicking a switch on top of the camera. It comes with an 8 MB card, so plan to invest in a higher capacity card if you plan to save video or more than a few photos to this media. Another issue is the LCD, which will burn through batteries more quickly. Plan to invest in extra batteries for an extended trip or use the eyepiece when possible. That said, it's a very nice little camera with a lot of functionality and a joy to use.

By Sean Carruthers

For the bird[er]s

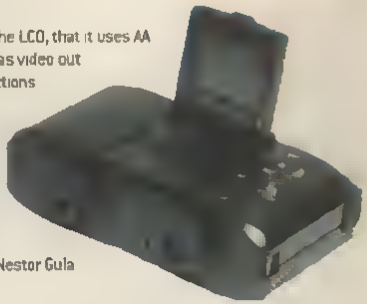
Pentax Optio DigiBino

www.pentaxcanada.com

Price: $299.99

Pentax has combined image capture with a compact set of binoculars in a camera designed for wildlife watchers. It offers 7X magnification, a 3.2X digital zoom, top resolution of 0.8 megapixels, and a 1.6 inch, flip-up LCD for framing shots and reviewing images. Options are few, but users can select from three resolutions, digital zoom on or off, and single or continuous shoot modes. The latter takes up to 10 images in rapid succession, which will appeal to birders. The low resolution is an obvious drawback, with the silver lining being that you can fit about 100 images in the 16 MB of onboard memory. I liked the user interface, the LCD, that it uses AA batteries, and has video out and USB connections. Higher resolution and a memory card slot, would make it a very versatile camera option.

By Nestor Gula



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Organizing the digital shoebox

Archiving options

Another option is Jasc's Paint Shop Photo Album 4 (www.jasc.com) which has a lot of similarities to Photoshop Album but includes a few tricks of its own like making panoramas out of multiple photos.

On the other hand, if you mainly want to keep your graphics organized there's Cerious Software's ThumbsPlus 6.0 (www.thumbsplus.com) which is tops at managing thousands of multimedia files in dozens of formats especially on removable media.

Close behind is Ulead's Photo Explorer 8.0 (www.ulead.com) which has fantastic batch-conversion features. (The less-powerful Photo Explorer 6.0 can be downloaded for free.)

If you just want to show off your pictures, Ofoto (www.ofoto.com) offers a free online photo album service — and if your far-flung friends or relatives like what they see they can order prints up to 20x30-inches without you ever lifting a finger.

Adobe Photoshop Album 2.0

www.adobe.com
For Windows Me/2000/XP
Price $65

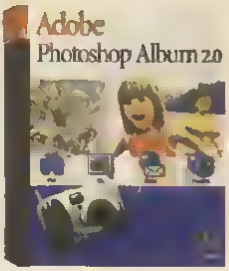
Taking pictures is fun. Taking digital pictures is fun and easy, which can be a deadly combination. I think I have more (digital) pictures of my son's first three years of life than my parents have of my first 10.

So what's the solution to hundreds or thousands of photos just sitting on a hard drive? Well, that's up to the individual. Some people just throw them all into a folder — the 21st century equivalent of a few cluttered boxes in the closet. Others get organized and put them in a digital photo album. I know, I know. Putting real photos in a real photo album is tedious enough. Why would anyone want to do it on a computer?

For one thing, it's a lot easier. I've been using photo archiving programs for years now, and they generally work the same way. I point the program to my graphics files (if they're scattered across my hard drive I just tell it to root them out) and it builds a catalogue and creates low resolution thumbnails of the pictures themselves. So instead of searching through my hard drive (or piles of CDs) for that one picture of my aunt Judy at the last family reunion, I have a centralized index that I can sort by date, file size, location, or whatever method is easiest for me at the time.

OK, that's great, but it's hardly reminiscent of a photo album, right? Well, this is where programs differ. Lately I've been playing with version 2.0 of Adobe's Photoshop Album, which takes some common to photo-archiving software functions and tweaks them just enough to add an incredibly user-friendly sheen.

Most such programs use some kind of key word system — I could assign the "family" and "maternal" to all the photos of my relatives on my mother's side for example. The idea, of course, is to simplify searches later. Photoshop Album takes that same basic concept and applies it to tags — coloured or graphic icons with pre-defined or custom category names that are applied to pictures individually or to a group. The tags are always visible on the side of the interface, and selecting one instantly displays thumbnails of images with those tags.



Further to that are the program's collections, which group photos according to a theme but allow a single shot to appear in several collections — my photos of this year's SIGGRAPH parties can appear under a collection of shots from conferences and a collection of nightlife photos.

The timeline is a bar that runs across the top of the interface, spanning the range of dates covered by images in the database (in my case, the earliest date is 1993, and the latest within the last few days). Bars on the timeline indicate the number of images within a given date range. So if I'm looking for pictures from a trip in the summer of 1996, I move the slider to around that time. (I could also sort thumbnails by date, but this is more intuitive and involves less squinting.) A complement to the timeline is the calendar view that makes it a snap to, say, find photos taken on someone's birthday.

Once organized, it's time to move on to one of the main purposes of photo albums: showing off. With Photoshop Album, I can gather photos and create Video CDs, greeting cards (paper and electronic), calendars, slideshows, and even an honest-to-goodness printable photo album. It also hooks into online services, such as professional printing and delivery of digital photos, custom album creation, and Web-based photo galleries. (Several of these are for U.S. users only, so check before you plan a masterpiece.)

These features, along with Photoshop Album's other nifty surprises, help make creating photo albums fun — something I'd have thought was impossible.

By Emru Townsend

More than your average inkjet

HP Photosmart 7960

www.hp.ca
Estimated retail price: $449
Cartridges: $30 (black), $32 (photo), $32 (gray), $50 (tri-colour)

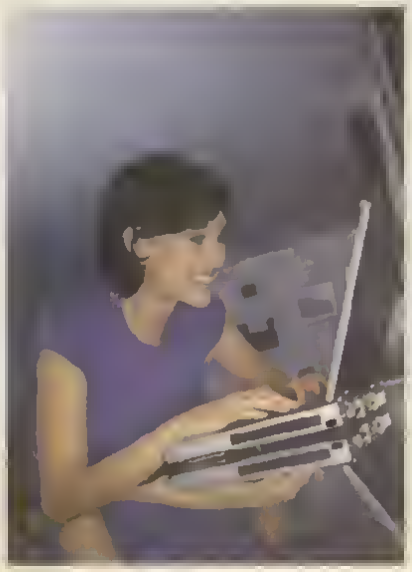
With the sea of low cost inkjets — some of which produce decent photo prints — this new Photosmart model from HP may induce sticker shock. But while it's right up there in price, it's also up there in features.

For PC-free photo printing, drop your digital camera memory card (CF, SmartMedia, Memory Stick, SD, MMC, or xD formats) into the correct slot on the printer and navigate menu commands on the LCD. The 2.5-inch screen is large enough to get a good look at the images you want to print and to do some basic image editing. The user interface was excellent. I easily accessed the full range of features without consulting the manual, as did the control group (a brother-in-law who is relatively new to inkjet printing).

Using only the printer, you have access to a lot of options. You can print out a proof sheet of images on the memory card. The sheet includes a thumbnail image, barcode and small oval outline for each shot. Fill in the ovals to select images and choose quantity and size (which apply to all shots on a sheet) at the bottom of the page. Scan the sheet back through the printer, follow prompts for loading photo stock and tray selection, and out come the prints.

Through the LCD, you can also add borders (selection is limited), do basic editing, print multi-image album pages and a series of stills (16 per 8x11-inch page) from a video clip, and select full-colour, black and white, sepia, or antique printing mode.

Though the sepia and antique prints were a little disappointing, the Photosmart 7960 really shone at black and white printing. And it should: it's the first eight colour consumer inkjet. It has a photo cartridge, which is common to six colour inkjets, as well as a gray cartridge that adds more more depth to black and white prints. I printed out several borderless, 8.5x11-inch black and white prints on HP's glossy photo stock and the detail was amazing, even in very dark areas.



Colour prints were also good. In a non-scientific comparison of 4x6-inch prints from the 7960 and from a photolab, the inkjet prints (on the glossy HP stock) were preferred five out of five times. Granted, the photofinisher lightened a couple of prints, which appeared faded. (We don't have room here to address colourfastness and durability of the two printing methods, HP cites research showing that prints on its premium photo stock and using its printers and inks will last 73 years.)

For those who want to include their PC in the fun, the 7960 has two USB 2.0 ports and is Mac and Windows compatible. It also does a good job of document printing and can be used as a media card reader for your computer.

By Megan Johnston

Prints to dye for

Photographers who don't want to boot up a PC (or don't have one) to print their digital images have another option: dye sublimation printers.

Like inkjets, these printers have memory card slots or connect directly to the camera itself, and have LCDs for reviewing and selecting images and navigating menu commands. In general, this type of printer creates high quality, durable snapshots.

When reviewing the Kodak (www.kodak.ca) EasyShare DX6440 camera for this month's cover story, we had a chance to review the EasyShare Printer Dock ($299), which combines a camera cradle (for connecting to a PC and recharging batteries) with a dye sublimation printer. The quality of its borderless, 4x6-inch prints was stunning. However, they cost about $1 each — combo paper/ink refills come in packages of 40 sheets for $39.95. The dock is compatible with other (but not all) EasyShare cameras.

This fall, Sony (www.sony.ca) released a pair of dye sublimation printers: the DPP-EX5 ($300) and DPP-EX7 ($600). We haven't had a chance to review them, but they have some interesting features. Both include Memory Stick card slots and the DPP-EX7 has a Type II PC Card slot which can be used for SmartMedia or CF cards with an adaptor. Sony also offers a wider variety of print stock: 3.5x4-inch, 3.5x5-inch, and 4x6-inch photo papers as well as large or small stickers. The cost for the paper/ink refill kits breaks down to about $0.80 to $1.60 per print. Printing modes include full-colour, monochrome, sepia, or pearl tone.

If you do want to boot up your computer, all of the printers noted here are Windows and Mac compatible.

By Nestor Gula and Megan Johnston

Have Lumix, will travel

With new Panasonic camera in hand, HUB rolls into Japan

TOKYO — One week before the start of Tokyo's consumer electronics show, CEATEC, Panasonic gave HUB a sneak peek at its new Lumix digital cameras. Though they are based on previous Lumix models, all offer improved performance.

The star of the launch was the Lumix FZ-10, a high-end, consumer-level camera with a 4 megapixel (MP) sensor and a 12X optical zoom lens. Added to its automatic shooting mode are plenty of features for those who prefer manual controls, including aperture- and shutter-priority modes, a manual focus ring, a hot shoe for flash attachments, and a real-time histogram function balancing images as you take them.

And then there's the Mega Optical Image Stabilization. Similar to image stabilization technology in video camcorders, Mega OIS uses gyro-sensors to track subtle camera wobble, which it compensates for with a set of moving lenses. Inside a still camera, Mega OIS helps reduce blurring in low-light shots or shots taken at the maximum zoom, which can magnify the motion of unsteady hands. It can be set to work either full time or at the moment of shooting only.

The FZ-10 features a few other improvements, as well. In manual focus mode, a small box in the centre of the LCD shows a 4X magnified portion of the image, allowing you to focus better. You can also depress the auto-focus/manual focus selector switch while in manual mode if you want the camera to help with the focus while letting you control other details.

The Leica lens system allows the camera to maintain a fixed F2.8 brightness across the entire zoom range. (Other cameras with a long optical zoom have trouble getting the same amount of light to the CCD when the lenses retreat into the zoom barrel. The lens system uses 13 elements, including one aspherical Extra-low Dispersion element designed to keep all three colours — red, green, and blue — aligned when they hit the CCD sensor.)

One issue raised during the briefing was the relatively low megapixel rating of the camera. While other manufacturers are pushing 5 and 6 MP cameras, a 4 MP sensor seemed a bit low. Panasonic responded that, unlike many competing models, the FZ-10 features a colour filter that reads "Y" information using all three colours on the sensor, not just green, allowing a sharper image with better diagonal resolution. According to Doug Borbath, product manager for Panasonic Canada Consumer Products Division's imaging group, this technology "makes the image resolution comparable to a six-megapixel standard CCD."

The FZ-10 is scheduled to hit Canadian stores in late November, and should retail for about $999 (the list price is slightly higher).

Though it features a lens that scales from 35 through 420 mm, a 1.5X tele-converter lens attachment will be available in early 2004, bringing the lens to 630 mm. Available around the same time will be a wide-angle conversion lens attachment. No prices have been announced. (An interesting side note: the carbon alloy body means the camera itself is light and these attachments don't add much weight. A similar SLR setup could cost $40,000 and weigh many times as much as the FZ-10 with attachments.)

By Sean Carruthers

Compact stability

Two Lumix FX models were recently announced. The FX-1 and FX-5 replace the Lumix F1 in the compact camera category. Both come with a 3X optical zoom lens and feature an aluminum body available in a range of colours. The FX-1 has a 3.2 MP maximum resolution, while the FX-5 is a 4 MP model.

Despite their compact form, both feature Mega OIS technology (see main story). Also of interest, both models can capture images in a 16:9 aspect ratio, a feature that Panasonic added for compatibility with widescreen TV sets. During another media briefing in Tokyo, the company showed off new Viera brand LCD and plasma sets that have a built-in SecureDigital media card slots, allowing users to take the SD card full of 16:9 format shots from their camera, plug it into the TV and see images that fill the screen.

The FX-1 and FX-5 are scheduled for release in the spring of 2004, but pricing and availability in Canada is still to be determined.

Jack of all trades now master of some

TOKYO — During HUB's travels to Japan, Panasonic unveiled its revamped line of multimedia devices. Formerly grouped under the E-Wear label, they've been rebranded D-Snap, and are headed to Canadian retail shelves this month.

The idea is pretty appealing: take all of the devices you might want to carry with you — digital still and video cameras, and video and MP3 players — and cram them into a single gadget.

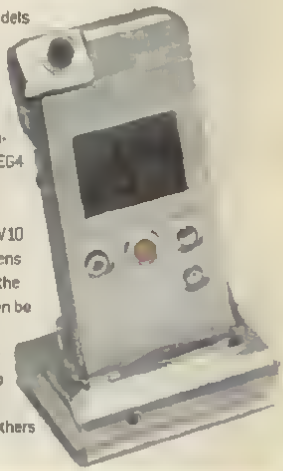
Panasonic did just that with the E-Wear line, but, although the multimedia devices were capable of many things, they did none of them particularly well. The company appears to have listened to complaints, though, overhauling the line and improving video and photo quality.

The first D-Snap to be launched in Canada is the ultra-slim SV-AS10. This model has a fixed-focus, 2 megapixel (MP) camera with a lens that spins through 180 degrees. It records QuickTime movie files at 10 frames per second, plays back MP3 and Windows Media audio, and functions as a voice recorder. The internal battery is recharged by dropping the D-Snap into its cradle. It comes with an 8 MB SecureDigital memory card and an estimated street price of $449.

Most interesting of the upcoming D-Snap products is the SV-AV100, which captures MPEG2-quality video (the same quality used for DVD video). It comes with a 10X optical zoom, 2.5-inch LCD, and 512 MB SD card. Because it records to the memory card, it has no mechanical parts, allowing for its small form and light weight (156 g). At full quality, it can only capture about 10 minutes of video on the included card. Knock the quality down to MPEG4, and it can capture about an hour. It will be available in early November for an estimated street price of $1,499.

The following two D-Snap models are also coming to Canada (release dates and pricing to be announced):

- SV-AV25: A clamshell design with a top photo resolution of 2 MP that captures MPEG4 video at 30 fps.
- SV-AV50: Also a clamshell design, but thinner than the AV10 and AV25. When opened, the lens pops out the opposite side of the camera, and the 2 inch LCD can be spun into place, just like a video camera. It has the same top photo resolution and video capture rate as the AV25.



By Sean Carruthers

Gemini-nominated 21 [http://www.21c.ca] is an edgy, youth-oriented news magazine show aired nationally on CTV. Subjects have included a look at alcohol and drug rehab programs for teens; street racing; youth who work as strippers, and various programs that help street kids. On our cover this month are the hosts of 21, Anne-Marie Mediwake and Dominic Patten, who sat down to talk with HUE about how they use technology at work and play.

Anne-Marie Mediwaka

Mediwake was born in Sri Lanka and moved to Canada at age six. She has been involved in television since her teens: producing an Alberta-based women's magazine show, as well as documentaries on teen life. She offered some observations about teens and technology.

"It's so amazing. Nobody talks on the phone anymore. They're [teens] all chatting online," she says, noting that the 21 Web site is really interactive, because their audience is younger and appreciates those features. "We're the only CTV show that is that interactive. We do live Web chats, we update our message boards all the time, and our Web content is current, because you need the extra supplement," she says.

"In fact, we go to chat rooms [on certain topics] to find guests," she says.

Mediwake says she was fascinated by a show they did last season looking at how divorced families use technology to stay in touch, and it wasn't just with cell phones.

"We did a story on one show about how kids stay in touch with their divorced parents who live in different cities. They would set up a Web cam to chat and stay in contact. They could [show] music concerts and violin practices, and that's how they used technology to stay in contact with their families."

At home, Mediwake uses her cell phone, a DVD player, and is frequently accesses her email on both her laptop and desktop computer.

"I'm using the Internet all the time. I don't know how [journalists] did it before!"

She's also recently started shopping online.

"I shop for clothing and fashion online, for vacations online, and I love it! I don't have time to go out shopping, so I can sit at my computer screen and look at stuff or get ideas for things. I don't have to park! I can shop from my hotel room if I want," she says.

21 airs on Saturday evenings across Canada. Check your local listings for specific time.

Dominic Patten

In addition to hosting 21, Patten is the national news culture correspondent for CTV. Prior to joining CTV he was a correspondent for CBC's Undercurrents.

"So much of what I do is tech. I can't imagine journalists who worked in the days before cell phones and laptops and even ATM machines," says Patten. "I think those guys must have been heroic."

The 21 Web site features a live chat, show archives and information about the hosts.

"I felt our Web site was really important to us," Patten says. "And the reward has been there for us. I know a number of people who watch our show internationally, and they watch it because we put our archives up on the site. You can watch the entire last two seasons of the show in the archives. I think that is a tremendous user resource."

At home, Patten has a 36-inch Sony TV, DVD and VHS players, and a smaller Sony Trinitron used exclusively with his PS2.

"Vice City is my favourite PS2 game. You've got to have a wrestling game, a war game and a racing game in the collection. My PS2 is a very social thing. My friends come over and we play together. It's fun."

Patten says his oldest piece of technology is a yellow sports Walkman from the '80s and his newest is a Canon digital camera he purchased in the spring. "In all honesty, I don't know why I never got a digital camera before. Having said that, I'm not one for reading the manual and I've learned most of what I know about the features of the camera through trial and error."

He says his nicest gadget is a Samsung Yepp YP-700, which has FM radio and multi-format support for both MP3 and WMA and supports both Mac and Windows platforms. "I have a PC laptop at the office and a G4 at home. [The Yepp] weighs almost nothing and is a great companion on long trips and short jogs."

By Jessica Malone

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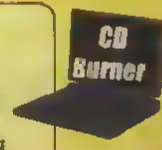

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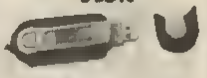

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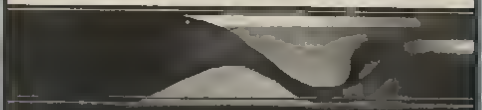

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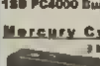

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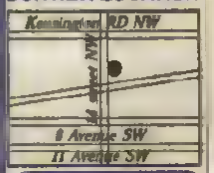

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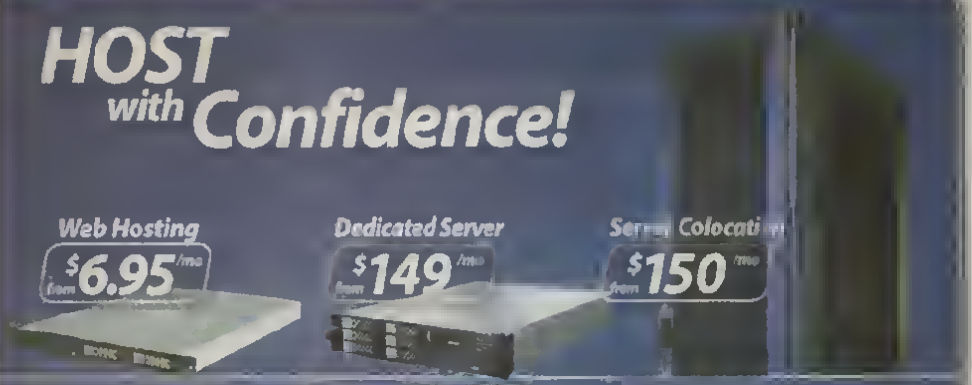

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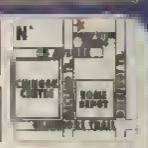

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- PC-Chips / ECS Motherboard
- 256MB PC-2700 DDR RAM
- 30GB 7200rpm Hard Drive
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- 16-bit Sound
- 52X CD-ROM
- Floppy Drive
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- Stereo Speakers
- 17" ATX Case w/ 300W
- 3 yrs Labour & 2 yrs Parts Warranty

Duron 2000+	Celeron 1.7GHz
$349	$389

AMD CPU Upgrade		Intel CPU Upgrade	
XP2100+	+$85	Cel 2.4GHz	+$25
XP2400+	+$70	P4 2.0GHz	+$110
XP2600+	+$105	P4 2.8GHz	+$175

Upgrade to 512MB DDR RAM +$55
Upgrade to 52X24X52 CD-RW +$35
Upgrade to 40GB HDD / 80GB HDD +$ 0 / $30

IC Hornet

- PC-Chips/ASRock/ECS Motherboard
- 256MB PC-2700 DDR RAM
- 40GB 7200rpm Hard Drive
- nVidia GeForce4 MX440 64MB AGP
- 16-bit Sound
- Floppy Drive
- 52X24X52 CD-RW
- PS/2 Mouse
- PS/2 Keyboard
- Stereo Speakers
- 17" ATX Case w/ 300W
- 3 yrs Labour & 2 yrs Parts Warranty

Athlon XP2100+	Celeron 2.4GHz
$509	$499

AMD CPU Upgrade		Intel CPU Upgrade	
XP2400+	+$28	P4 2.0GHz	+$68
XP2500+	+$40	P4 2.8GHz	+$150
XP2700+	+$80	P4 3.0GHz	+$300

Upgrade to 512MB PC-2700 DDR RAM +$85
Upgrade to 80GB HDD / 120GB HDD +$20 / $55
Upgrade to 52X CD-RW & DVD Combo +$35

IC TigerShark

- PC-Chips/ASRock/ECS Motherboard
- 512MB PC-2700 DDR RAM
- 80GB 7200rpm Hard Drive
- ATI Radeon 9200SE 128MB AGP
- 16-bit Sound
- Floppy Drive
- 52X24X52 CD-RW
- PS/2 Mouse
- PS/2 Keyboard
- Stereo Speakers
- 17" ATX Case w/ 300W
- 3 yrs Labour & 2 yrs Parts Warranty

Athlon XP 2000+	Celeron 2.4GHz
$599	$589

AMD CPU Upgrade		Intel CPU Upgrade	
XP2400	+$25	Cel 2.8GHz	+$70
XP2600	+$60	P4 2.0GHz	+$95
XP2800 Barton	+$123	P4 2.8GHz	+$150
XP3000 Barton	+$225	P4 3.0GHz	+$300
XP3200 Barton	+$415	P4 3.2GHz	+$300

Notebooks

Acer TravelMate 290XMi | IC Thinsplus Tablet

- 1.3GHz, 256MB
- CD-ROM, 14.1"TFT
- XP Home $1329

VIA C3 1GHz 256MB 40GB, CD-ROM 14" Touch Screen, Win XP Home $1299

Tosh [illegible] P25-S807 | Sony [illegible] PEG-NX73

P4 2.8GHz, 512MB 60MB DVD-RW 17" TFT Win XP Home $2699

PalmOS 5.0 8.0oz Only $579

Acer

TravelMate 290XMi - Centrino 1.3GHz, 256MB 20GB DVD-RW 14.1" TFT, Win XP Home — $1

Compaq

Presario 2150CA - AMD Athlon XP-M 2400+ 256MB 40GB DVD+CDRW 15" TFT Win XP Home — $1349

ECS

G320C VIA C3 1GHz 256MB, 20GB, DVD-ROM 14" $

G320C VIA C3 1GHz, 256MB, 40GB, DVD-RW, 14" – $

IBM

T40 237591U Centrino 1.6GHz, 512MB 80GB HDD DVD+CDRW 14" TFT Win XP Pro — $3499

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Falcon - P4 2.4GHz 800 512MB 40GB DVD+CDRW 15" SXGA ATI Radeon 9600Pro 128MB Win XP Home – $2399

Sony

Clie PEG-SJ22 PalmOS 4.1 4.9oz — $21

Clie PEG-SJ33 - PalmOS 4.1 172 gram — $2

Clie PEG-T650 PalmOS 5.0 6.2oz — $3

Clie PEG-UX50 - PalmOS 5.2 6.0oz — $

Clie PEG-NZ90 PalmOS 5.2 5.0oz — $

Vaio PCG-GRT1001 Pentium4 2.4GHz 256MB 40GB DVD+CDRW 14.1" TFT Win XP Home 8.0lbs — $

Vaio PCG-FRV35 - P4 2.8GHz, 512MB 40GB DVD+CDRW 15" TFT Win XP Home 7.7lbs — $

Vaio PCG-FRV27 - P4 2.8GHz, 512MB 40GB DVD-RW 15" TFT Win XP Home 7.7lbs — $

Vaio PCG-TR1A Centrino 900MHz, 512MB 30GB DVD+CDRW, 10.4" TFT Win XP Home 3.1lbs — $

Vaio PCG-GRT170 - P4 2.8GHz, 512MB 60GB, DVD-RW 15" TFT Win XP Home 8.6lbs — $

Vaio PCG-Z1RA - Centrino 1.5GHz 512MB, 80GB DVD+CDRW, 14" TFT Win XP Pro 4.7lbs — $

Toshiba

A10-S157 - P4-M 2.2GHz 256MB 30GB DVD+CDRW 14" TFT Win XP Pro — $

A10-S117 - P4-M 2.2GHz 256MB 30GB, DVD+CDRW, 15" TFT Win XP Pro — $

[illegible] — $

TFT Win XP Pro — $

P25-S477 - P4 2.4GHz 512MB, 40GB DVD+CDRW 17" TFT Win XP Home — $

P25-S487 - P4 3.0GHz, 512MB 80GB DVD+CDRW 17" TFT , Win XP Home — $

P25-S607 - P4 2.8GHz, 512MB 80GB DVD-RW, 17" TFT Win XP Home Entertainment — $

P20-GPV – P4 3.0GHz, 512MB 80GB DVD-RW, 17" TFT Win XP Home Entertainment — $

IC Typhoon

- Gigabyte GA-7VT600P-L MB (VIA)
- Asus P4S533-X MB (P4)
- 512MB PC-3200 DDR RAM
- 80GB 7200rpm Hard Drive
- nVidia GeForce FX5600 128MB AGP
- 16-bit Sound
- 52X24X52 CD-RW
- 16X DVD-ROM & Floppy Drive
- PS/2 Mouse & PS/2 Keyboard
- Creative SBS350 2.1 Speakers
- 17" ATX Case w/ 300W
- 3 yrs Labour & 2 yrs Parts Warranty

Athlon XP2400+	Pentium4 2.8GHz
$839	$959

AMD CPU Upgrade		Intel CPU Upgrade	
XP2500 Barton	+$15	P4 2.8GHz	+$90
XP2700 Barton	+$65	P4 3.0GHz	+$190
XP2800 Barton	+$100		
XP3000 Barton	+$200		
XP3200 Barton	+$580		

IC ThunderBolt

- Gigabyte GA-7NK00-L1 nForce2 MB (NF)
- Gigabyte GA-8IPE1000L i865PE MB (P4)
- 512MB PC-3200 DDR RAM
- 80GB 7200rpm Hard Drive
- ATI Radeon 9600Pro 256MB AGP
- SoundBlaster Live! 5.1
- 52X24X52 CD-RW
- 16X DVD-ROM & Floppy Drive
- PS/2 Keyboard & PS/2 Mouse
- Altec Lansing AVS500 4.1 Speakers
- 17" ATX Case w/ 300W
- 3 yrs Labour & 2 yrs Parts Warranty

Athlon XP 2400+	P4 2.8GHz FSB800
$969	$1129

AMD CPU Upgrade		Intel CPU Upgrade	
XP2500 Barton	+$15	P4 2.6GHz 800	+$65
XP2700 Barton	+$65	P4 3.0GHz 800	+$150
XP2800 Barton	+$100	P4 3.2GHz 800	+$300
XP3000 Barton	+$200		
XP3200 Barton	+$580		

IC Stealth

- Gigabyte GA-7N400-Pro nForce2 MB (NF)
- Abit IS7 i865PE SATA MB (P4)
- 512MB PC-3200 DDR RAM
- 80GB 7200rpm 8MB SATA HDD X2 (160GB Total)
- ATI Radeon 9800 128MB AGP
- SoundBlaster Audigy2 ES 7.1
- 52X24X52 CD-RW
- 16X DVD-ROM & Floppy Drive
- PS/2 Keyboard & PS/2 Mouse
- Altec Lansing VS 251 5.1 Speakers
- 17" ATX Case w/ 300W
- 3 yrs Labour & 2 yrs Parts Warranty

Athlon XP 2400+	P4 2.8GHz FSB800
$1369	$1519

AMD CPU Upgrade		Intel CPU Upgrade	
XP2500 Barton	+$15	P4 2.8GHz 800	+$65
XP2700 Barton	+$65	P4 3.0GHz 800	+$150
XP2800 Barton	+$100	P4 3.2GHz 800	+$300
XP3000 Barton	+$200		
XP3200 Barton	+$580		

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- Gigabyte GA-8KNXP i875P MB (Intel)
- 1024MB PC-3200 DDR
- 36GB 10,000rpm 8MB SATA HDD X2 (72GB)
- 80GB 7,200rpm 8MB SATA HDD X2 (160GB)
- ATI All-In-Wonder 9800 Pro 128MB AGP
- SoundBlaster Audigy2 ES Platinum 7.1
- LG 4X DVD+/-RW DVD-Burner
- 52X DVD/CDRW Combo Drive & FDD
- Creative Inspire T7700 7.1 Speakers
- 17" ATX Case w/ 400W Dual Fan PS
- 3 yrs Labour & 2 yrs Parts Warranty

Athlon XP2400+	P4 2.8GHz FSB800
$2649	$2849

AMD CPU Upgrade		Intel CPU Upgrade	
XP2500 Barton	+$15	P4 2.8GHz 800	+$40
XP2700 Barton	+$65	P4 3.0GHz 800	+$150
XP2800 Barton	+$100		
XP3000 Barton	+$200		
XP3200 Barton	+$350		

IC Super Station

- Gigabyte K8VT800Pro KT800T MB (AMD)
- Gigabyte GA-8KNXP i875 MB (Intel)
- 2048MB PC-3200 DDR RAM
- 36GB 10,000rpm 8MB SATA X4 (144GB)
- ATI Radeon 9800XT 256MB AGP
- SoundBlaster Audigy2 ES 7.1
- LG 4X DVD+/-RW DVD-Burner
- 52X DVD/CDRW Combo & FDD
- PS/2 Mouse & PS/2 Keyboard
- Creative Inspire T7700 7.1 Speakers
- 17" ATX Case w/ 400W Dual Fan PS
- 3 yrs Labour & 2 yrs Parts Warranty

Athlon64 3200+	P4 3.0GHz FSB800
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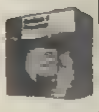

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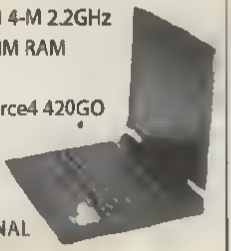

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Sapphire Radeon 9800Pro 128M DDR AGP8X	$253
Sapphire Radeon 9700 128M DDR AGP8X	$383
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MSI FX5200 128MB 8x AGP DDR tv-o	$118
MSI FX5900 128MB 8x AGP DDR tv-o	$236
MSI TV-tuner card w/remote & PEGA	$98

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Xpider Gamer Case w/350w ps	$89
Enermax 300w power supply	$124
Enermax 350w power supply	$174
Enermax 450w power supply	$214
300w w/purchase of case	$24

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Monitors

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AOC 18" KLR 21dpi FLAT 3year P&L	$259
AOC 15" LCD 1year P&L	$359
AOC 17" LCD 1year P&L	$459
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Call For Other Monitors NEC, Samsung, LG, Viewsonic, Sony

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SMC EZ-Stick TX 10/100 PCI	$34
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8port 10/100 switch Surecom	$36
16port 10/100 switch Surecom	$74
24port 10/100 switch USR	$149
others call or ascotpc com	

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USB v2 2 port card PCI	$34
Parallel Port card PCI	$34
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Greetings!

How to: Make your own holiday cards

Everyone is familiar with family photo holiday cards. But why not make your own cards and add a creative twist? You could paste family photos onto the hanging ornaments of a Christmas tree, create a collage of family photos from the past year, or make a card with a photo of you and the recipient together. For that matter, you don't have to use a photo. If you (or your children) draw or paint, scan a piece of art to use on your cards.

Putting it together

Some photo-editing software packages include templates for greeting cards. For this project I used Microsoft Digital Image Suite 9, which includes a library of ready to print cards and templates.

If your photo-editing software doesn't have greeting card templates, there are standalone greeting card packages, such as ArcSoft Greeting Card Creator (www.arcsoft.com, $52.50*, Windows and Macintosh versions available). Or, if you have access to desktop publishing software, you can design your own layout.

Once you've chosen the template and know the card's size and orientation, you'll need to prepare your images. If you're scanning a printed photo or piece of art, set the scanner to the best quality — you can always compress the image later, but you can't increase the image quality without rescanning.

Using the photo editing software, fix problems like red-eye and poor exposures. Then, check that the picture is suitable for printing in the size you want for your card. Usually, you'll find details about the image size and quality under a menu selection like "resize image."

Generally, you'll want to print photos at a resolution of at least 300 dots per inch. While it may look perfectly fine on your monitor, a low resolution photo will look grainy in print. If the picture you want to use is much smaller than the front of your card, consider combining it with other photos, text, clip art, or a border to fill the space, rather than stretching the image and lowering the quality.

If you're combining elements from two or more photos, do that in the photo-editing software as well, creating a new image to import into your card layout.

Once you have the image prepared, you can lay out your card, adding text and graphics, selecting fonts and colours, and arranging all of the elements for the overall design. If your program has an eye dropper tool, you can sample a colour directly from your image to use for your text, giving the card a more polished, unified look.

Printing

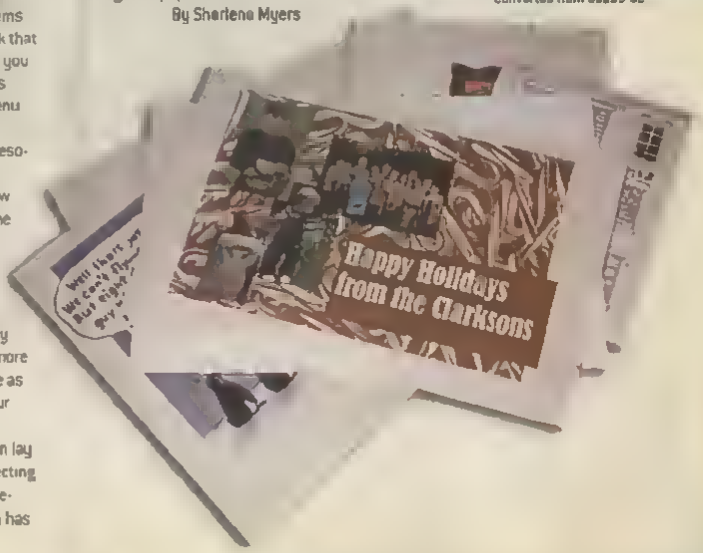
When choosing your paper, consider how the colour will influence the tones in the pictures you have used. A snowy winter scene, for example, calls for very white paper, while holiday red or green tones will be enhanced by a cream-coloured background.

Several paper suppliers and printer manufacturers offer a variety of inkjet-ready cards that include matching envelopes. Prices can range from about $1 to $2.50 per half-fold card, depending on the style and quality, and they're usually sold in packages of at least 10. Using paper designed for inkjet printers will produce the sharpest prints — other papers can be too absorbent and yield blurry edges.

Before you start printing on your card stock, do test runs on cheaper paper and fold them like your finished cards to be sure everything looks right — it took several minor adjustments before I was happy with the finished product.

It is certainly possible to print cards out on regular inkjet paper, if your budget is tight, but choose a card design that uses a quarter fold, rather than a single-layered half-fold, or it will be too flimsy to stand up and the ink will show through the paper.

By Sherlene Myers



Online options

No time or cash to invest in greeting card software? These sites offer quick, simple card making options.

- Hewlett Packard sponsored www.mycardmaker.com lets you upload your image to a template, personalize the greeting, then print or email it. The templates are designed to print on HP greeting card papers.
- At www.picturebuzz.com, many of the card templates are designed with spots to insert photos. Has a 30-day free trial membership, after which it costs US$12.95 per year. The service offers image-editing tools as well. Non-members can preview thumbnails of available designs.
- www.ditk.kids.com offers a variety of free crafts for kids, including greeting cards and gift tags, which can have customized messages and can be printed in colour or in black-and-white for hand-colouring.

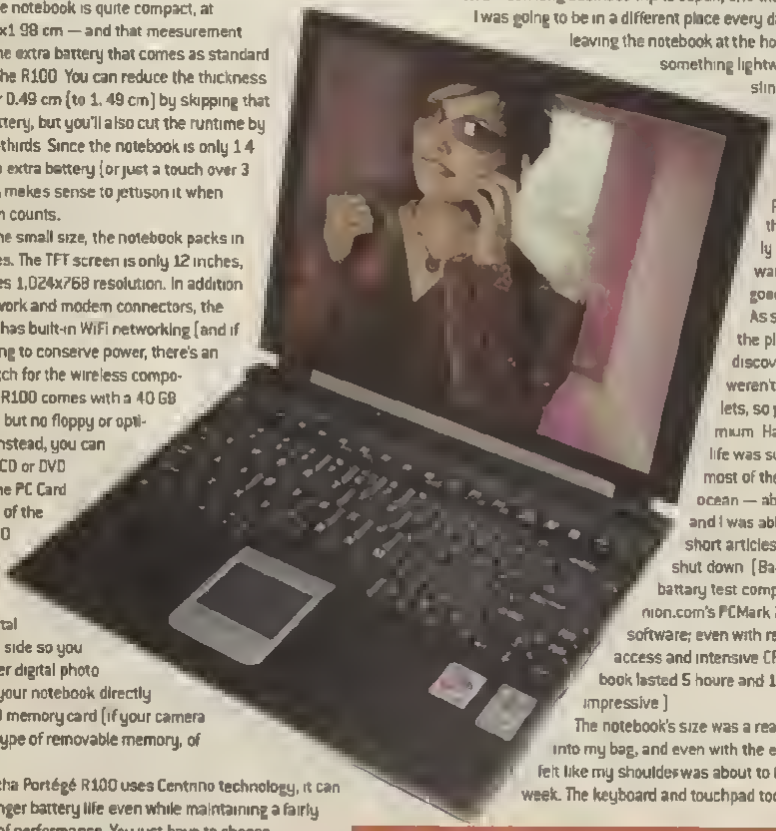
*Converted from US$39.98

Portégé a powerful stowaway

For the traveler who's always on the go, finding the perfect notebook companion can be pretty tough. If you want a machine with computing power, you're often saddled with a notebook that's so heavy you end up with one shoulder permanantly lower than the other from toting it around. If you're looking for something lighter, chances are you'll have to sacrifice on the processing power and possibly settle for a shorter runtime, because your battery will have to be smaller to fit into the compact notebook housing.

With Toshiba's Centrino-based Portégé R100, you may not have to choose. The notebook is quite compact, at 28.6x22.9x1.98 cm — and that measurement includes the extra battery that comes as standard gear with the R100. You can reduce the thickness by another 0.49 cm (to 1.49 cm) by skipping that second battery, but you'll also cut the runtime by about two-thirds. Since the notebook is only 1.4 kg with the extra battery (or just a touch over 3 lb.), it only makes sense to jettison it when every gram counts.

Despite the small size, the notebook packs in the features. The TFT screen is only 12 inches, but features 1,024x768 resolution. In addition to the network and modem connectors, the R100 also has built-in WiFi networking (and if you're trying to conserve power, there's an on/off switch for the wireless component). The R100 comes with a 40 GB hard drive, but no floppy or optical drive; instead, you can connect a CD or DVD drive via the PC Card slot or one of the two USB 2.0 ports. There's also a SecureDigital slot on the side so you can transfer digital photographs to your notebook directly from an SD memory card (if your camera uses this type of removable memory, of course).



Because the Portégé R100 uses Centrino technology, it can achieve longer battery life even while maintaining a fairly high level of performance. You just have to choose between the 900 MHz or 1 GHz processor — either will do a good job.

If we have complaints about the R100, they're mostly size related. The smaller overall size means a more compact keyboard, which may take some adjustment — especially for those with larger hands. Also, because the touchpad is so close to the keyboard, it can be a bit awkward, especially because it's set to a high sensitivity level right out of the box. (If you're like me, you'll want to change that immediately and disable tap-to-click, to avoid unfortunate incidents while trying to work.)

Tested in action

I managed to get my hands on the Portégé R100 just before heading off on a week-long business trip to Japan, and the timing was perfect. I was going to be in a different place every day, and rather than leaving the notebook at the hotel, I wanted to have something lightweight that I could sling onto my back even while wandering around taking pictures. Since I would be loading photographs onto the machine on a fairly regular basis, I also wanted something with good battery life.

As soon as I got onto the plane in Vancouver, I discovered that there weren't any electrical outlets, so power was at a premium. Happily, the battery life was sufficient to take me most of the way across the ocean — about eight hours — and I was able to finish four short articles before having to shut down. (Back home, I ran the battery test component of madonion.com's PCMark 2002 benchmark software; even with regular hard drive access and intensive CPU usage, the notebook lasted 5 hours and 11 minutes — impressive.)

The notebook's size was a real plus, as it fit neatly into my bag, and even with the extra battery, it never felt like my shoulder was about to fall off, even after a week. The keyboard and touchpad took a bit of getting used to, but were usable even on the plane, train, and bus.

It all adds up to a winning combination: long runtime, CPU power, and compactness.

For that reason, Toshiba's Portégé R100 is a natural for the HUB VIP Award.

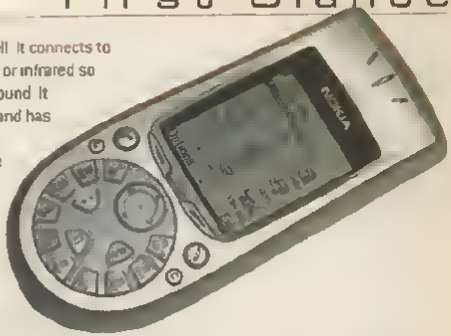
By Sean Carruthers

Toshiba Portégé R100
www.toshiba.ca Estimated price: $2,849 (900 MHz), $2,899 (1 GHz)

continued from page 11

Carrying a PDA, cell phone and digital camera can be pretty tiresome, so all-in-one devices are gaining popularity. Rogers AT&T Wireless has joined the fray by introducing the **Nokia 3600** image phone. The Nokia 3600 takes pictures and video clips, sends and receives emails, performs text messaging, has a contact list, a calendar and a to-do list, can access the Web, run Java applications and play games. It's a pretty good cell phone as well. It connects to your computer via Bluetooth or infrared so there are no messy wires around. It weighs in at just over 130 g and has almost 20 MB of memory, including a 16 MB removable MultiMedia Card, so it can store between 200 and 400 images. The Nokia 3600 costs $349.99 from Rogers AT&T Wireless with a two-year service agreement (www.rogers.com).

Nokia 3600



I know exactly where I am

Adventures with portable GPS

Pocket GPS Navigator PTCAN200

From: Pharos Science and Applications Inc (www.pharosgps.com)
Price: $485*

Is it true that men don't ask for directions? Never having been lost myself, I couldn't say for sure. The point may be moot anyway, with the increasing affordability of personal global positioning system (GPS) devices.

A GPS device tells you exactly where you are on the planet (within several metres). If longitude and latitude leave you cold, you can overlay a map and get the information in terms you can relate to, like location of and directions to a restaurant. GPS devices have become mainstream — you can buy one at most electronics retail stores. They are about the size of a cellular phone and most now come with map databases that are stored either in memory or on removable cards.

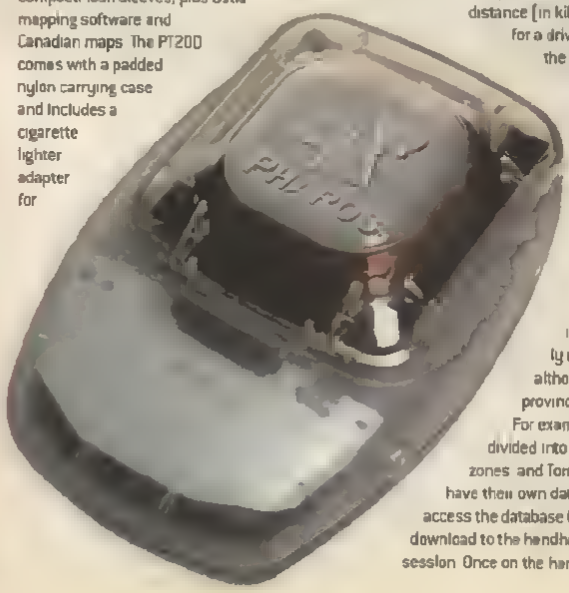
An alternative to a dedicated device is an PDA add-on like the the Pocket GPS Navigator from Torrance, Calif.-based Pharos Science and Applications Inc. (www.pharosgps.com). This one is compatible with the Pocket PC platform.

The package Pharos sent for review was the full meal PT200, which includes a GPS module, Bluetooth wireless and CompactFlash sleeves, plus Ostia mapping software and Canadian maps. The PT200 comes with a padded nylon carrying case and includes a cigarette lighter adapter for charging the unit in a vehicle, some non-slip pads, and a PDA holder that you can mount in your vehicle.

The Pharos kit will work with most devices that use Windows CE 3.0 or newer operating system. The maps and navigation software reside on the Pocket PC, while the GPS module supplies satellite data in real time. The 5x5.5x1.5 cm GPS module slides into either the Bluetooth sleeve if you have a Bluetooth-enabled Pocket PC, or a CompactFlash sleeve.

I used an older HP Jornada 545 that doesn't have Bluetooth but does have a CF slot. This setup worked well with the GPS unit sticking out of the handheld's CF slot, forming a single portable unit. An 85 cm extension cable also allows you to separate them — positioning the GPS module close to the car windshield, for example. Using Bluetooth, you wouldn't need to worry about a cable getting in the way, of course.

The GPS unit isn't overly complicated to use. You connect it to the handheld, then launch the Pharos software. Menus on the Pharos interface allow you to turn the GPS unit on and access the data screens and maps. The main GPS information screen is split in two. The upper part shows compass points with a readout in the middle that shows degrees. The lower part gives latitude, longitude, time, speed (in kilometres per hour) and distance (in kilometres). Taking the unit for a drive in the car revealed that the speed gauge corresponded quite closely to my car's speedometer, although interestingly, the speed readout fluctuated between 0.11 and 0.58 kph, even when the unit was sitting stationary on my desk.



The Ostia Canadian map software is divided in geographic areas roughly matching provinces, although more populated provinces are further subdivided. For example, British Columbia is divided into northern and southern zones, and Toronto, Ottawa and Montreal have their own databases. To use a map, you access the database CD with your PC and download to the handheld using an ActiveSync session. Once on the handheld, you can locate

GPS terms

Waypoint: a location stored within the GPS unit. It could be your home, the mall, a fork in the road, a secret fishing hole.
Route: sequence of waypoints.
Track log: a feature in GPS units that keeps track of your progress along a route — useful if you want to back track along your exact route.

How GPS works

The Global Positioning System is operated by the U.S. Department of Defense. Officially known as NAVSTAR (Navigation Satellite Timing and Ranging), it relies on big technology — a string of a couple dozen satellites orbiting the earth in six orbital planes and sending out a time-synchronized signal. A GPS unit can receive signals from a few of the satellites at any given time and it establishes its location by triangulation, calculating the time differences in the signals it receives from them. It needs signals from three satellites to calculate latitude and longitude. GPS units capable of calculating altitude need signals from four to make the calculation.

Fun with GPS: Geocaching

If you want to go treasure hunting the high-tech way, join the geocaching crowd. Geocaching is a craze/pastime where you hunt for hidden caches of interesting baubles or just landmarks using a GPS device. Go to a site like **www.geocaching.com**, type in your postal code and you'll find all kinds of caches to look for. I did just that and was surprised to return 107 hits for the area of Southern Alberta I now call home. Along with the longitude and latitude, the cache listings

continued on page 27

street co-ordinates or common locations like airports, set origins and destinations; and plot routes

On a newer, more robust Pocket PC platform — especially one with on-board Bluetooth or a CompactFlash slot — the Pharos kit would be worth considering (although you can now buy dedicated GPS units that cost less) The street-level detail for the cities I looked at — Toronto, Ottawa, and Calgary — was pretty good

The Jornada, now four generations old, was fine for showing the GPS read outs, but proved to be barely adequate for map navigation. Most of the provincial maps were too big, although the map and index file for Ottawa and Eastern Ontario (just over 14 MB) and Greater Toronto (just over 21 MB) could be stored But a slow processor hindered responsiveness and the Jornada's battery lasted only a couple of hours

By David Tanaka

*Converted from US$369

continued from page 26

include encrypted hints and riddles to help you find the cache The above site also has a useful FAQ that gives advice history and points of etiquette

GPS resources

Garmin International (www garmin com) makes a range of industrial and consumer GPS units, including the eTrex line and the latest iQue, which combines a Palm organizer with a GPS unit Thales Navigation (www magellangps com) makes a range of handheld devices under the Magellan brand Also sells maps under the MapSend brand GPS City (www gpscity ca) is a Calgary-based e-tailer specializing in GPS equipment A good place to browse to get an idea of the range of product categories, plus Canadian prices

Warp 9, N-Gage

Key N-Gage features

- Illuminated colour display (176x208 pixels)
- Bluetooth wireless technology
- Digital music player and recorder
- Stereo FM radio
- Multimedia messaging
- Full email support (IMAP4 POP3 SMTP MIME2)
- XHTML browser
- Tri-band 900/1800/1900 MHz phone
- MP3 AAC MIDI and WAV ringing tones

Battery life

The N-Gage offers similar talk and standby times when compared with previous Nokia phones with lithium ion batteries. However, making use of its gaming, radio and MP3 playing capabilities will cause battery life to plummet (all times according to Nokia)

Task	Time (hr:min.)
Charging	1:35
Talk	2-4
Standby	150-200
Music	8 (max.)
Radio	20 (max.)
Games	3-6

Game Boy Advance to go wireless

Whether a knee jerk "me too" reaction to the N-Gage's wireless gameplay capabilities or the natural progression of handheld gameplay, Nintendo announced a partnership with Motorola to bring wireless multiplayer gameplay to the Game Boy Advance (GBA).

The Wireless Link Adapter will be released early in 2004, Nintendo says, at the same time as the first two titles to support the peripheral: Pokemon Leaf Green and Pokemon Fire Red. Traditionally, multiplayer GBA titles have required gamers to connect their GBAs using a wired solution. While the Wireless Link Adapter plugs in to the same port on the GBA, the device won't be backward compatible with earlier games using the link cable.

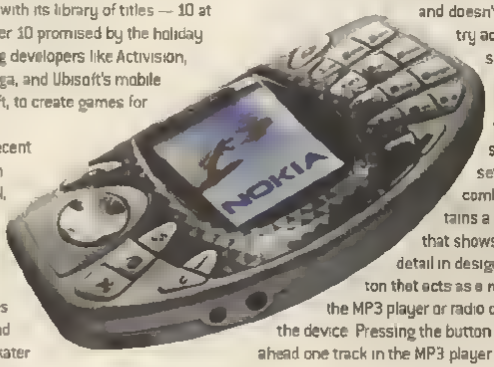
Aside from the potential for numerous Star Trek references that are sure to impress, the N-Gage mobile game deck (www.n-gage.com), upon closer scrutiny, is more than the sum of its parts.

Equal parts game machine, MP3 player, and radio, with data and phone capabilities worked in for good measure, the N-Gage certainly isn't cheap. However, if all of its capabilities are put to use, the $449 price tag might become easier to bear.

Games

The N-Gage is a gaming platform first and foremost, according to Nokia product literature and representatives, and will compete with other gaming handhelds, most specifically, the Game Boy Advance (GBA).

Other handheld systems have tried to challenge Nintendo's monastic rule of the handheld market and all have failed to varying degrees. Nokia hopes to buck this trend with its library of titles — 10 at launch with another 10 promised by the holiday season — enlisting developers like Activision, Electronic Arts, Sega, and Ubisoft's mobile division, Game Loft, to create games for the N-Gage.



The result is a decent launch library with games like Sonic N, Tomb Raider, and Super Monkey Ball available at launch, and with potential killer apps like Red Faction and Tony Hawk's Pro Skater (THPS) coming soon.

Slowdown, where games get "chunky" when too much is happening on screen, was a persistent problem with the early versions of games tested and final versions have yet to be made available at the time of writing.

The key function that the N-Gage holds over its gaming competition is its wireless multiplayer gameplay over Bluetooth and, using the phone and data capabilities of the device, over a GPRS cellular phone network.

Games ship on postage stamp-size MultiMedia Cards (MMCs) and retail for slightly more than a GBA game — between $45 and $55.

Perhaps the device's biggest flaw is in swapping games in and out. To change games (or insert an MMC card for MP3 playback) users have to unplug the headphones, remove the N-Gage's back plate, remove the battery, press a catch, slide out the MMC card, replace it with a different game, and reverse the process, waiting for the device to restart after its innards have been put back together. It's a far cry from the literal plug and play method the GBA uses.

Audio

The N-Gage only has 3.4 MB of internal storage, and that is dedicated to appointment, contact, and application storage. To make use of its MP3 capabilities, users have to invest in a separate, writable MMC card. The MP3 player interface is functional and doesn't feel like a pat-try add-on included simply to make the N-Gage's price tag easier to bear. The stereo headset/microphone combination contains a nice feature that shows attention to detail in design, namely a button that acts as a remote for either the MP3 player or radio capabilities of the device. Pressing the button once skips ahead one track in the MP3 player or moves to the next radio station marked as a favourite in radio mode.

Voice

The N-Gage's design works well for games but looking at the face of the unit might leave potential users stumped as to how it is used as a phone. The answer is not without some difficulty. The voice capabilities of the tri-band phone aren't lacking, but if you aren't a fan of using a mobile phone with a hands free headset, the N-Gage can be cumbersome.

The earpiece is located on the top edge of the phone's face above the number pad while the microphone is on the left edge of the device. In other words, be prepared for some strange looks from passers by as you hold the narrow side of this half-moon up to your ear.

By Andrew Moore-Crispin

The good ole hockey game

Every year, it's a foregone conclusion that a new crop of sports video games covering the most popular genres will arise in the months leading up to the holiday gift-giving season. Another foregone conclusion: anyone who bought his or her favourite sports title last year will wrestle with the decision to buy in again this year for, if nothing else, the updated team rosters and stats.
With apologies to Stomping Tom, here's a roundup of new console titles for the best game you can name. By Andrew Moore-Crispin

NHL 2004

Publisher/developer: EA Sports **Price** $64.99 **Online** On PS2 only **Platforms** All

The most widely recognized of the NHL games comes from EA, the company that popularized licensed sports titles with NHL Hockey in 1992, followed up just about every year since on the latest consoles

Graphics: The graphics in sports titles (and games in general) improve every year as developers learn to wring every bit of power out of the current consoles. NHL 2004 is no exception. That said, players faces have been blurred somewhat in this version in favour of smoother animations — a worthwhile trade off

Sound: The crowd reactions vary depending on the excitement of the game: playoff crowds are much more boisterous than regular season crowds, for example. Similarly, a close game gets the crowd into the action, while they quickly tire of a blow out.

Replay value: In a word, lots. Dynasty mode allows gamers to take control of practically every element of the game, from hiring and firing coaches and players to setting salaries, drafting, and altering ticket prices. Online gameplay adds a massive amount of replay value to the title, but is limited to the PS2 versions of this and all EA Sports titles following an exclusive deal announced in the spring. Traditional multiplayer is available for all incarnations.

NHL Hitz Pro

Publisher: Midway **Developer:** Next Level Games **Price:** $59.99 **Online:** PS2 only **Platforms:** Xbox, PS2, GameCube

Midway — well known for sports titles that sacrificed reality for action and mayhem — is going legit with NHL Hitz Pro, a game that blends over-the-top action, sometimes hilarious commentary, and the arcade feel of Midway sports titles past with simulation realism

Graphics: The graphics in Hitz aren't up to snuff when compared with the competition. While based on an older graphics engine, they are still functional and much more realistic than Midway's past sports titles

Sound: Hitz also features crowd interaction where the level of tension in the game is translated into the crowd's cheers (or jeers, as the case may be). The Midway treatment shows through in the sometimes hilarious interaction between the two colour commentators

Replay value: Gameplay modes are where this game shines, offering pickup hockey games on the frozen neighbourhood pond to inner city roller hockey games in a parking lot in addition to the standard tournament, exhibition, etc., modes. NHL Hitz Pro is pickup and play arcade-style hockey at its finest, with enough simulation elements to maintain interest

ESPN NHL Hockey

Publisher: Sega **Developer:** ESPN Videogames **Price:** $64.99 **Online:** Xbox and PS2 **Platforms:** PS2, Xbox

ESPN NHL Hockey is the follow up to Sega's NHL 2K3. The 2K series has been widely acclaimed by critics and gamers alike, but has been consistently outsold by EA's franchise

Graphics: ESPN NHL Hockey beats out the competition in the graphics department with some of the smoothest player animations and sharpest graphics. ESPN hints at the broadcast-style presentation recognizable to any sports nut who can't turn off the sports channel, despite the pleas of a significant other

Sound: Crowd interaction seems to be the order of the day where the latest batch of sports titles are concerned, and is perfected in ESPN. Sounds from the ice are at the forefront; when a big event occurs, like a huge hit, the crowd sound is pushed to the background. It's a small touch but demonstrates the attention to detail in keeping within the broadcast style. The two commentators do an excellent job of calling the game

Replay value: As the only title to offer online play for both PS2 and Xbox as well as a series of mini games, pond hockey, tournaments and drafting, ESPN NHL Hockey will easily maintain gamers' interest, at least until the next crop of hockey games surfaces

It isn't easy being green

Complex composition of PC components, home electronics makes disposal a growing crisis

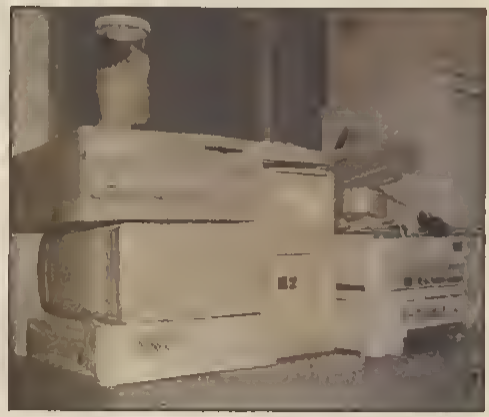
Imagine a large, 26-foot moving truck — the kind you'd use to move a family of three into a house. It's filled with obsolete computer technology: the computers themselves, keyboards, mice, and monitors. Imagine it so jam-packed that you can barely squeeze another mouse in. Now imagine the spectacle of the truck dumping all of that plastic, metal and glass into a huge hole in the ground. It's a pretty appalling sight, isn't it?

Now imagine 52 more trucks just like it, waiting in line to either unload the same kind of cargo into the earth, or have it incinerated. That line, by the way, would extend almost half a kilometre.

Sounds horrifying, but according to a 2001 report commissioned by Environment Canada, that's what happened — almost 34,000 tonnes of unused technology went into landfills or incinerators around the country.

Here's another shocker: another report, completed this June, looked beyond computers and examined the disposal of televisions, VCRs, DVD players, answering machines, and more of the electronic gadgetry that are becoming increasingly central to our lives. The report estimates that in 2002, we got rid of over 86,000 tonnes of electronic equipment, recycling about 2,500 tonnes — about three percent — and leaving the rest to be buried, incinerated, or to sit in a big pile somewhere. If the trends continue, we'll be throwing out over 130,000 tonnes in 2010, and proportionally, recycling less.

There are several issues at work here, but one of the most disturbing is that electronic waste, or e-waste, introduces a disproportionate amount of hazardous materials into the environment — picture tubes in TVs and monitors alone are some of the biggest contributors of lead to municipal waste.



Duncan Bury is the head of product policy at the National Office of Pollution Prevention within Environment Canada. Part of his job description is to worry about these things so that, at some point, we won't have to. Bury believes that a key to stemming the tide of e-waste is some form of cooperation between government, industry, and informed consumers. In an ideal world, industry would make it easy to identify what goes into different components, or at least make it easier to disassemble parts for reuse. Then municipal and provincial governments would have an easier time structuring reclamation programs, which informed consumers could then use.

But industry has to get its act together first, according to Bury. They need to put processes in place for "even real simple stuff, just to the point of marking every computer housing with the type of plastic resin it is. This is no-brainer stuff. It's done widely on consumer packaging now, and that's been of immense help to municipalities that recover plastics through blue box and other recycling programs. It's not done by the electronics industry."

Meanwhile, there's a growing amount of technology in our daily lives. Even if you're a relative luddite, there's no escaping it. As Bury puts, "[Circuit boards] are ubiquitous, right? They appear in all sorts of forms. The other issue is we're starting to see these kinds of chips and electronic devices appearing in other things like cars and high-tech appliances. So the marketplace still continues to grow and come up with new applications. The Europeans have also included dispensing machines, for soft drinks and things like that [in e-waste studies] — there's a lot of electrical equipment in those as well."

Clearly, the e-waste tide is rising. But there are individuals, government programs, and organizations that are doing their part to stem the flow. In the coming months, we'll be exploring the different aspects of Canada's e-waste problem, and along the way I'll illustrate what we, as consumers and citizens, can do to help.

By Emru Townsend

E-waste research

Information Technology (IT) and Telecommunication (Telecom) Waste in Canada was the first report on a waste commissioned by Environment Canada. Released in 2001. An executive summary of the report can be found at:
http://www.ec.gc.ca/nopp/docs/rpt/itwaste/en/index.cfm. The most current report, Baseline Study of End-of-Life Electrical and Electronic Equipment in Canada, was released in June but as of this writing is not yet available to the public. It should be available around the time you read this.
For further information on either report, visit the National Office of Pollution Prevention Web site:
http://www.ec.gc.ca/nopp/

THE SCREEN SAVERS

The Screen Savers weeknights at 7 PM ET

A LIVE DAILY INTERACTIVE SHOW GEARED TOWARD KEEPING THE TECH ENTHUSIAST UP TO SPEED ON WHAT'S HAPPENING IN THE WORLD OF COMPUTERS FROM CRACKING CODE TO THE LATEST SOFTWARE DEVELOPMENTS.

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Napster goes legit

The name that popularized music file sharing and turned the recording industry on its ear, is attempting a come back

However the Napster cat that got industry execs and artists like Lars Ulrich of Metallica fame and Dr Dre so riled up has been effectively neutered

No longer is Napster a free service Bought out by Roxio for $5 million after some long and expensive legal battles before being shut down in 2001 the software that made MP3 part of the vernacular and sparked international debate about the morality and legality of MP3 swapping is now very much legal and legit

Set to launch in late October under the name Napster 2 0, the software is promising 500 000 tracks available at launch for US$0 99 each having received the consent of all the major U S record labels

The company is also making deals with major consumer electronics manufacturers like Samsung to create digital music players branded Napster-compatible Napster like Puretracks com uses the Windows Media Audio file format as opposed to the more common and widely compatible MP3 standard

The Napster 2 0 Web site is currently unavailable to non-U S visitors with no mention of plans to bring the service to Canada or other countries anytime soon

Downloads for the Canuck masses debuts

Puretracks com passes over MP3 for WMA

The latest online source for legal music downloads is banking on Canadians being willing to pay for what can still be had for free

Moral issues of illegal file swapping aside, Puretracks (www puretracks com) says that if the downloading experience is quicker, easier, safer, and generally more rewarding than scouring P2P (peer-to-peer) networks using programs like Kazaa, WinMX, and the like for "free" files, consumers will happily pay between $0 99 and $1 39 per song The company also believes that music fans on the whole want artists to be compensated for their work.

The recording industry's hard line stance on downloadable music has softened leading up to and following the successful first months of Apple's iTunes service, currently exclusive to U S users (originally only for Mac, but for PC users too, as of mid-October)

Puretracks is a Canadian service launched on Oct. 14 by Moontaxi Media. It allows anyone with a valid credit card and a few minutes to browse the site to preview, then legally download, WMA (Windows Media Audio) files at a higher bit-rate — and therefore audio quality — than the most common MP3 standard of 128-bit audio

The catch? MP3 is the de facto standard for digital music players and while a list of some compatible music players is available on Puretracks com, the number of digital audio players compatible with the WMA format is put to shame by the wide availability and mass acceptance of MP3 technology The other catch? Puretracks is not Mac-compatible. It requires Windows 98, Me, 2000, XP, or 2003.

Moontaxi Media already has some experience with selling music over the Internet but its earlier commerce site, Moontaxi.com, sells a variety of somewhat obscure hard-copy audio CDs.

Derek van der Platt, co chief executive officer of Moontaxi Media, says the idea for Puretracks surfaced when the company was looking into creating a more accessible music site and was originally intended as an online store selling more mainstream audio CDs

"When we first did the research we weren't even interested in downloads," van der Platt says "We knew, even a year and a half ago, that [download] was a word you didn't want to use. You said 'MP3' in a record company office and you were scolded and shown the door, but that has really changed "

Van der Platt credits digital rights management (DRM) in large part for alleviating some of the record companies' collective fear about music downloading. DRM protects record companies from having songs attained through Puretracks or similar services show up on P2P networks.

After downloading a track from Puretracks.com, consumers can upload it any number of times to up to three different WMA-compatible portable music players or burn it on up to three separate CDs using Windows Media Players CD burning utility. The computer containing the DRM certificate is the only one — barring a yet-to-be-seen hack or crack — that can work with and play the downloaded songs

As a Canadian site, van der Platt says Puretracks has inked deals with the five major record labels here to bring popular music to the masses while shining a spotlight on a variety of independent Canadian artists in the "recommended" section with offerings from many Canadian independent labels.

Puretracks currently has 125,000 tracks available, a number that will grow to 300,000 by year end, the company says

By Andrew Moore-Crispin

www.hubcanada.com/dvc

HUB
DIGITAL LIVING

DIGITAL VIDEO CONTEST

Let your imagination (and camcorder) go wild.

Submit up to 3 *original* digital videos, along with the form below, by February 23rd, 2004. Anything goes, but keep it clean. All videos must be burnt to a CD, and must be no more than 5 min. in length. Winners will be announced in the March 2004 issue. Must be in QuickTime or Windows Media Player format. All elements of the video must be original and not infringing on any copyrights.

GRAND PRIZE

The 17-inch iMac

Designed around an ultra-compact base, the Apple iMac features a stunning 17-inch widescreen LCD that appears to float in mid-air, allowing users to effortlessly adjust its height or angle with just a touch. The 17-inch iMac packs powerful features like a speedy 1GHz G4 processor, extreme NVIDIA graphics, and a fast DVD-burning SuperDrive which lets you burn your own movies and photos on a DVD disc that plays in almost any standard DVD player. The iMac also offers two FireWire® 400 and five USB ports for fast, simple, plug-and-play connections to digital devices such as digital cameras, DV camcorders and iPod digital music players.

PRIZES

Final Cut Express

Featuring the same interface as the Emmy Award-winning Final Cut Pro, Final Cut Express is a robust editing solution for digital video enthusiasts. It provides professional-level editing, compositing and real-time effects for full-featured DV editing. Final Cut Express is an innovative combination of power and ease of use. It's optimized for the DV format and comes with all the high-quality compositing, titling and effects capabilities you need for professional-level video.

Video editors can use Final Cut Express to capture, manage and edit digital video, apply transitions, filters and effects in real-time, create titles, composite layers, and produce high-quality graphics and animations; and perform colour correction. Final Cut Express projects can be exported for use in iDVD™ or DVD Studio Pro®, saved back to tape, or exported to any QuickTime® format, including MPEG-4.

WINNING VIDEOS will be featured on CTV's WebMania

NO E-MAIL ENTRIES. *Those e-mailing entries could be subject to visits from angry HUB network admins (and trust us, you don't want that to happen). For complete rules and regulations go to www.hubcanada.com/dvc*

HUB's digital video contest Entry Form. Deadline February 23rd, 2004

Name:.....
Address:.....
E-Mail:.....
Phone Number:.....
Age:.....

Occupation/school:.....
Title of Video.....
Camera used to film your video.....
Hardware used to generate your video.....
Software used to generate your video.....

Mail your entries to: HUB, Digital Video Contest, 625 Church Street, Suite 600, Toronto, ON, M4Y 2G1

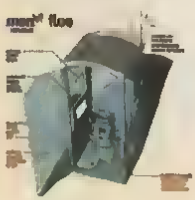
Microsoft's iLoo

Portable bathroom enclosures aren't exactly considered to be the lap of luxury, but for outdoor concert goers, there is little choice.

Microsoft's iLoo wouldn't have made the actual bathroom enclosure a more pleasant place to be, but it would at least have given users a little motivation to brave the inhospitable atmosphere out of sheer curiosity — if it ever got beyond the initial design phase, that is.

By putting a Windows XP computer in the enclosure connected to six channel surround sound, a plasma display, and a waterproofed wireless keyboard, Microsoft's U.K. office hoped to connect with English festival goers to woo them to MSN UK (Microsoft Network UK, the company's unified communications Web resource).

The iLoo got press coverage in a number of publications including the Wall Street Journal, and news services such as Reuters, before being declared a hoax subsequently having the hoax denied being billed an April fools joke one month late before dying an unceremonious death with Microsoft UK issuing a statement that the iLoo wasn't a hoax or an April fools joke, but that it would never see production as a result of "some misunderstanding about the context of the initiative."



The toilet of tomorrow, today

If there was ever any doubt that technology touches us every day, it should be put to rest with the introduction of the high-tech toilet to North America.

Already widespread in Japan, the digi-john (such as it is) was introduced to North American shores by bathroom fixture giant Toto, whose seat is as ubiquitous in Japan as American Standard's in the West.

Toto's Neorest has more than a few technology creature comforts, as well as a few functions that will have potential users scratching their heads.

The Neorest is an extension of Toto's existing Japanese product line, set for a North American launch in mid-October, though without any major manufacturers testing similar products in the North American market, it is unclear how consumers will react. In spite of this, Lenora Campos, public relations manager for Toto USA, says the company is optimistic.

"It's an emerging trend of which we are at the head," she says (pun not intended), citing an aging baby boomer population as a key target market as they "begin to build in those elements that will enable them to remain at home and independent as long as possible," as the generation ages.

More accurately, she says, and with a price tag of $5,865 in Canada for the most feature laden model, the Neorest's target market is the high-end consumer. As with most all technology though, the price is likely to come down to more attainable levels if the Neorest and future tech toilets gain acceptance.

"Once the Neorest's unique civilities become known, it will move beyond a particular market," Campos says.

So what exactly are those "civilities"?

According to the product literature, the Neorest has some very useful and sensible features like a 1.2 gallon (about 4.5 litre) flush for liquid waste and an effective 1.6 gallon (approximately 6.1 litre) flush for other waste. "If the toilet does not clear the bowl, consumers will just flush and flush again, which negates any water savings. Toto products don't just flush at 1.6 gallons, they flush effectively," Campos says.

Other amenities like a heated seat and a lid that automatically rises when someone stands (this smart sensor is where the computer technology comes, in case you were wondering) in front of the toilet might wow dinner guests. Also, if you stand in front of the Neorest's sensors a bit longer, the seat will also raise itself. Sure to save at least a few marriages, the seat and lid will also lower and the toilet will flush automatically once the sensor is unobstructed.

Other features, like a catalytic deodorizer that automatically activates when "users" lift themselves from the seat, and a "cyclone flush engine" that promises to not only flush waste but to also scour the bowl, make the toilet partly self-cleaning, Campos says.

Other features might make the squeamish jump and the bashful blush, the Neorest's seat has built-in, temperature adjustable front and back cleaning water spray, accompanying warm air dryer and what the product literature refers to as an "oscillating spray massage" nozzle.

By Andrew Moore-Crispin

NOVEMBER PHOTO SPREE WINNER

THE WINNER:
Congratulations go to Laura Nickerson, from Calgary, whose picture of a grain elevator in Dorothy, Alberta won this edition of our bi-monthly photo spree challenge.

She used an Epson PhotoPC 750z to capture the image and Corel Photo-Paint V11 to tweak the hue. For this image Laura Nickerson won a Lexmark P3150 All-in-One Photo Printer.

LEXMARK P3150 ALL-IN-ONE

HUB DIGITAL LIVING

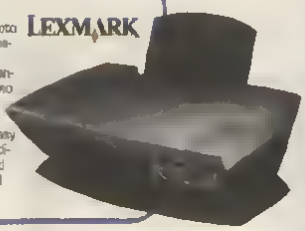
PRESENTS ITS Bi-Monthly PHOTO SPREE

THE CHALLENGE: Still Life

WIN!

LEXMARK P3150 ALL-IN-ONE

The Lexmark P3150 All-in-One Photo Printer is a personal photo processing centre with onboard camera card readers, a flatbed scanner and PC-enabled one-touch photo reprinting. The P3150 generates brilliant borderless 4" x 6" and 8.5" x 11" prints and makes it easy and convenient to incorporate traditional photos into your digital world thanks to the quality 48-bit flatbed scanner.



THE RULES: You must use a digital camera to capture the subject. Work can be submitted via email (contest@hubcanada.com) Accompanying your photo should be the make and model of the camera you used, the names of any software you used to modify the image and, if possible the f/stop and shutter speed you used to take the photo.

Submit your photographs, along with the information from the form below, by December 9, 2003. You can submit up to three photographs, all of which must be accompanied by a submission form. Entries must be submitted via email. Files should be no bigger than 800 KB and no smaller that 300 KB. One photo per email.

Contest Rules. Prizes must be claimed by February, 10 2004. Winners must provide valid identification upon claiming prize. The prizes awarded are not transferable and cannot be redeemed for cash. To enter and to be eligible to win, persons must be residents of Canada, and not employees or be domiciled with an employee of CCP Media, its affiliate companies, or advertising or promotional agencies. The winners will be selected by HUB on December 10, 2003 from among all eligible entries received on or before contest close date. Winners will be contacted by telephone or email. In the event that they cannot be contacted within the first week following the contest another entrant will be selected. All entries become the property of HUB and may be used in subsequent advertisements for the contest. All entries must be submitted by their artist and must be original work.

HUB's Photo Spree contest form. All submissions must contain this information. Send to contest@hubcanada.com

Deadline: December 9th, 2003

Name:.....

Address:.....

E-Mail:.....

Phone Number:.....

Age:.....

Occupation/School:.....

Title of Entry:.....

Camera Used:.....

Software Used:.....

This program brought to you by pedal power

One reason to restrict kids' TV viewing is the increasing incidence of child obesity, which puts them at risk of diabetes and other health problems. A few years ago, a researcher at St. Luke's Roosevelt Hospital in New York came up with a creative idea: he hooked up an exercise bike to a television, so that the TV would only stay on if there was a moderate amount of pedalling. In a 10-week trial, kids using the "TV cycle" ended up watching less TV (and losing some weight to boot).

You can read more about the TVcycle at http://news.bbc.co.uk/1/hi/sci/tech/324028.stm

KidPass limits TV time for your tots

RCA TruFlat 20F530T
www.rca.com
Estimated price: $319

If you go to RCA's Web site and look up the TruFlat 20F530T television, you'll find a line in the description that reads: "With KidPass you can control the amount of time your children spend in front of the television without being present!" It's a phrase that would have made me cluck disapprovingly just a few years ago, conjuring up images of laissez-faire parents who, not content to just use the television as a babysitter, couldn't be bothered to even keep an eye on how long their kids were staring at the tube.

Then my wife and I had a kid. He's three-and-a-half now, and we've discovered that when there's only one parent nearby and dinner has to be cooked (or, er, an unfinished article is approaching its deadline), a little Elmo can go a long way — even if he's already seen the tape 94,662 times. We've also discovered that when you're finally getting work done, it's easy to lose track of time, and suddenly that half-hour TV limit stretches to two hours.

And so, here we are with another trademarked feature, RCA's KidPass. It's a pretty good idea. I can set the total amount of TV allowed on a given day, and when that time limit is reached, the TV shuts off. Turning the TV back on requires a four-digit password, and no amount of cajoling (or unplugging) is going to help.

The KidPass options are part of the TV's Parental Controls menu, right after the V-Chip settings. You can set daily time limits — anywhere from 30 minutes to 16 hours (!), in half-hour increments — for each day of the week individually, and once the KidPass feature is activated, an internal timer keeps track of how long the TV has been on. Turning the TV off only pauses the timer until it's switched back on.

The only problem with KidPass is that it remembers a little too well. Every time I turn the TV on after the time limit runs out for the day, I have to re-enter the password; there's no way for me to tell the TV to ignore KidPass for the rest of the day without going back into the menu and turning it off — and then I have to remember to turn it back on when I'm done.

The KidPass feature was available on four RCA televisions released in August, with more models expected on the shelves by the time you read this. The 20-inch 20F530T, the particular model I was sent to review, has every feature I expect in a decent TV, including a digital comb filter. The colours on the flat-screen CRT were as bright and saturated as I expected, and pretty much on the mark right out of the box. There are, of course, multiple video inputs for coaxial, composite, S-Video, and component video. A nice extra is that you can assign specific inputs to specific devices in the menu (say, the satellite receiver to the S-Video input, the VCR to channel 3 on the coaxial cable, and the DVD player to the component input) so that when you press the device's button on the remote, the TV automatically switches to the appropriate input.

Speaking of which, the included universal remote controls up to six devices (TV, VCR1/VCR2, DVD, satellite/cable receiver, auxiliary) and I found it easy to use. It fits quite nicely in my hand and the buttons are just different enough that I was able to navigate it blind in short order; your mileage, of course, may vary.

KidPass lives up to its promise, and I suppose the best compliment I can give is that I'm glad it wasn't around when I was a kid. Combined with the V-Chip, parents can exercise just that much more control over what their kids watch, without having to hover around them at all times.

By Emru Townsend

"Have your say and get $5000!"

Influence HUB:Digital Living

HUB:Digital Living is offering you the opportunity to contribute to the magazine's content by participating in the eVox panel. By becoming an online panel member, you will be asked, periodically, to share your opinions on issues relevant to the digital community

and get $5000

In addition to giving you a platform to share your views, you will have the opportunity to receive cash. Panel members participating in these opinion surveys will be eligible to win $5000, drawn at random by Decima Research. Draws will take place each quarter, starting in September.

How it Works

By agreeing to join the eVox panel, you are giving permission to HUB Digital Living to provide your email address and name to Decima Research Inc. This is the only information HUB Digital Living will provide to Decima and any other information provided to HUB will not be shared.

You will then be sent an email from the eVox panel inviting you to complete a profile and formally join the panel

No Obligations. No Hassle.

Readers can choose not to join the panel at any point and can cancel their panel membership at anytime. No questions asked.

How Reader Information be Used

Reader information will always be reported in aggregate, meaning

- verbatim comments will not contain any information that could identify a specific panelist, and
- all other information will be combined with several panelists to ensure anonymity

Whenever possible, reader information and opinions will used as the basis for editorial content in HUB:Digital Living In addition, HUB may also share information with other stakeholders in the digital market This could include manufacturers, retailers, and other associations.

Protecting Your Privacy

To ensure the privacy and security of your personal information, HUB: Digital Living has partnered with Decima Research Inc to administer the eVox panel As an independent third party, specializing in research, Decima will never share your personal information with any other organization.

As a member of CAMRO (Canadian Association of Market Research Organizations), Decima Research strongly supports CAMRO's Standards and Rules of Practice regarding Internet research. In order to gain your trust and ensure that your privacy is held to the highest standards in the market research industry. Decima Research welcomes any questions, concerns or comments that you may have regarding our privacy policy Please feel free to contact us by e-mail at info@decima.com

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The glowing future

Even the most casual science fiction fan has probably noticed the vibrantly lit screens on spaceship consoles that seem almost animated. In the movies, they are a special effect, but in the real world they are about to become a reality — though perhaps as a piece of furniture you buy from, say, Ikea sometime in 2008.

It may sound far-fetched, but if research and development on OLEDs continues unimpeded, self lighting furniture, or for that matter, walls of light that can be hung like wallpaper, will become a reality in the near future.

OLED means organic light emitting diode, a relatively new technology that is already showing up in consumer electronics. It's essentially a kind of plastic that glows when powered by electricity.

It could even replace the light bulb in coming years. More about that in a minute, but first, its immediate application is for use in high-resolution displays. In fact, companies are already shipping a few products that use OLED displays. LG Mobile Phones, for example, started to ship the VX6000, a camera-enabled cellular phone available through Verizon Wireless in the U.S. that features an OLED screen.

Kodak, a big player in OLED technology, has developed its own version of the technology. The company recently announced a digital camera called the EasyShare LS633 (which is already for sale by Canadian retailers) that features a 2.2-inch OLED display on its back.

OLED is an ideal material for a gadget's screen because, unlike LCD, it doesn't have to be backer front lit. The light comes from within the material it is made of. It's also very thin and has low power requirements, which makes it optimal for products that run on batteries. Even better, it has a wide viewing angle: you can look at it sideways and the image doesn't distort or grey-out.

Within a few years, OLED displays could be as commonplace on your cellular phone or PDA as an LCD screen is today. And moving forward deep into the decade, industry experts say larger OLED screens will be possible so we may see TVs, computer displays and even video walls made from OLED technology.

"It will certainly surpass plasma [display technology] in a very real time frame," said Janice Mahon, vice-president of commercialization at Universal Display Corp. Her company is a key player in OLED development.

However Mahon believes that OLEDs can also be used as a light source, perhaps one day replacing light bulbs.

"We're looking at it as perhaps the next breakthrough in solid state lighting," she said. "We're going to go from breakable bulbs to this thin sheet of paper or plastic that will be a light source maybe as wallpaper or ceiling tiles that will be used in general lighting someday."

OLEDs will be eventually manufactured on reel-to-reel machines as large sheets, so they will be foldable, wrappable, and capable of being attached to uneven surfaces. So the idea of creating furniture that has a glow of its own thanks to OLED might be very possible. No need for a lamp on your bedside table, because the table itself will emit light.

"We will see OLED as a light source in a five- to 10-year time frame," said Mahon. "Replacing an incandescent bulb with something akin to a piece of plastic creates all kinds of wonderful opportunities."

Perhaps dashboards might be an ideal place to use OLEDs. Mahon says her company has been working with Toyota Industries on OLED technology. She wouldn't say for what purpose, though it's not much of a stretch to imagine how cars could use OLED technology. However, it should be noted that beyond the automotive business, Toyota is also into telecommunications, housing, and the marine business.

Who else is into OLEDs? If a company is into consumer electronics, chances are it's looked at OLEDs; names like Samsung, Motorola, and Pioneer came up in my research. DuPont is also a key player in the technology, and General Electric and Xerox are doing work in OLEDs. And as for Ikea? No word as yet, but can the OLEDig light-emitting wall unit be far away?

Andy Walker is a Canadian journalist based in California.

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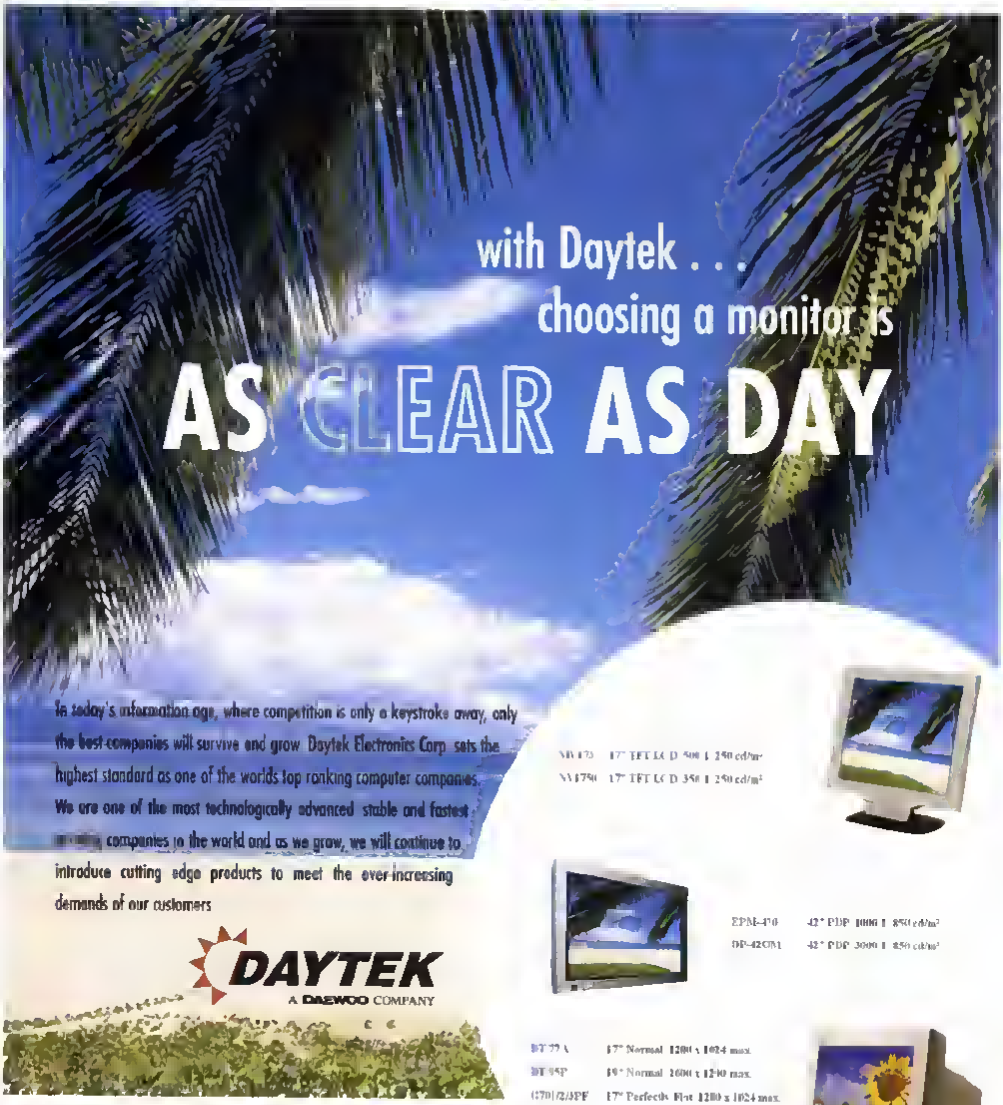
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